

ENF204 MICROBIOLOGY AND PARASITOLOGY

Credits: 6 Quarter; 5 Semester
In-class Hours: 96
Lab/Clinical: 46
Level: 2

OVERVIEW

The word microbiology derives from the Greek micros meaning small and bios meaning life and logos meaning study, for it examines organisms too small to be visible to the naked eye. Parasitology comes from the Greek words para, with, and site, food and logos, that is, dealing with living beings inhabiting another living organism (host) from which they obtain their food. The course introduces the student to the various sources of infectious and parasitic diseases and, framed within the context of Ecuador's reality, emphasizes the role that a member of a health team plays in preventing disease and infection.

OBJECTIVES

- To understand the epidemiology, morphology, physiology, and injury mechanisms of transmission of microorganisms and parasites in human beings
- Distinguish the basic structure of microorganisms to understand their physiology, life cycle and pathogenic effect on the host.
- Identify bacterial pathogens that cause infectious diseases and understand ways to prevent them.
- Identifying viral pathogens as causes of infections and epidemics in order to implement standards for isolation.
- Identify fungi as sources of allergies, poison and infections.
- Recognize clinical manifestations of infectious and parasitic disease, understand the importance of etiology and prevention strategies thereof.
- Discover the importance of etiologic diagnosis of disease, to understand the fundamentals of antimicrobial therapy.

CONTENTS:

KNOWLEDGE	SKILLS	VALUES
UNIT I: MICROBIOLOGY Concept of Microbiology, Bacteriology, Virology, Parasitology and Mycology. Units of measurement: Micrometer and Nanometer Angstrom.	Distinguish structural, physiological and genetic of bacteria. Recognize the Normal Flora bacteria. Discerning the degree of infection. Awakening cognitive	Responsible research, efficient teamwork and social engagement in learning as part of their professional training.

<p>Bacterial Structure: Forced and Optional Elements. Structure and function of each.</p> <p>Physiology, Genetics and Bacterial Growth.</p> <p>Bacterial Shapes and Classification: Coconuts, Bacilli, Spirals, Filamentous and pleomorphic.</p> <p>Normal Flora</p> <p>Degrees of Infection: Infection inapparent infection.</p> <p>Pathogenicity and Virulence.</p> <p>Colonization, Disease</p>	<p>ability and reasoning in the study of biological phenomena, familiarizing with the scientific method and stimulating their interest in the observation.</p> <p>To develop skills in the rational use of laboratory equipment.</p>	
<p>UNIT II: Bacteriology I Epidemiology, Morphology, Pathogenesis and Basic Prevention</p> <p>Streptococci</p> <p>Staphylococci</p> <p>Neisseria</p> <p>Haemophilus</p> <p>Bordetella Pertussis</p> <p>Corynebacterium Diphtheriae</p> <p>Listeria Monocytogenes</p> <p>Legionella Pneumophila</p>	<p>Recognize the transmission mechanism of infection.</p> <p>Develop research on major bacterial pathogens of man.</p> <p>Differentiate between normal flora and pathogenic bacteria.</p> <p>Relate the effect of bacteria pathogenic to the clinical manifestations of disease.</p>	<p>Participate effectively in exposure research.</p> <p>Demonstrates relevance to the topic, because it increases their training.</p>
<p>UNIT III: Bacteriology II Epidemiology, Morphology, Pathogenesis and Basic Prevention:</p> <p>Pseudomonas aeruginosa</p> <p>Helicobacter pylori</p> <p>Mycobacterium tuberculosis</p> <p>Clostridium</p> <p>Mycoplasma</p> <p>Campylobacter fetus</p> <p>Campylobacter jejuni</p> <p>Vibrio cholerae</p> <p>Chlamydia</p> <p>Rickettsia</p> <p>Spirochetes</p>	<p>Understand the importance of etiologic diagnosis and clinical laboratory value.</p> <p>Understanding the epidemiology of major bacterial infections.</p> <p>Discover and argue on the prevention of infectious diseases.</p>	<p>Understand your role in the health team and affirms its commitment to service and social commitment.</p> <p>Understand their responsibility in the prevention of infectious diseases.</p>
<p>UNIT IV: VIROLOGY</p>	<p>Identify and relate the viral infectious processes</p>	<p>Rate Health as a factor of human and social</p>

<p>Virus: Definition, Structure, Morphology, Viral Replication, Cell Effects, Vertical and Horizontal Transmission, Viral Classification (DNA, RNA) and Major diagnostic techniques. Epidemiology, Morphology, Pathogenesis, common symptoms and ways to prevent infections: HIV, Herpes Simplex 1 and 2, varicella zoster, cytomegalovirus, Epstein Barr virus, Kaposi's sarcoma, HPV, Dengue, Yellow Fever, Influenza, Parainfluenza, Measles, Rubella, Mumps, SARS, Respiratory Syncytial Virus, Cocksackie Virus AB Polio, Rotavirus.</p>	<p>for sanitary purposes, to implement prevention and insulation standards. Develop research capacity on major viral pathogens of man. Develop ability to recognize major viral infections and their impact on the health of people. Raise awareness about disease outbreaks and the importance of vaccination to prevent them. Knowing the value of Rapid Tests for the diagnosis of viral infections.</p>	<p>development. Demonstrates responsibility with his role as an educator for the prevention of diseases. Increase social commitment and dedication to service in the field of vocational training. Participate effectively in the exhibition of the research.</p>
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<p>UNIT V: Parasitology</p> <p>Symbiosis: Definition. commensalism, mutualism and parasitism. Parasite and Host: Definition forced and facultative parasites. Endo-and ectoparasites. Parasites and Heteroxenos Monoxenous. Definitive and intermediate host. Reservoir and Vectors. Definition of Infection and Infestation. Gateway. Rating: Helminths, Protozoa and Arthropods. Classification of Helminths: Nematodes, Cestodes and Trematodes. Classification of Protozoa: Rhizopods. Ciliates, flagellates and Sporozoa. Basic morphology, elemental Epidemiology, Transmission, Common Symptoms and Prevention of Diseases by: Ascaris Lumbricoides, Trichinella Spiralis, Trichiuris Trichiura, Enterobius Vermicularis, Uncinarias, Estrongyloides Stercoralis, Tapeworms, Entamoeba Histolytica, Balantidium Coli, Giardia Lamblia, Trichomonas Vaginalis,</p>	<p>Know through research THE major pathogenic parasites of man. Differentiate between pathogenic and commensal parasites. Relate the pathogenic effect of the parasites with the clinical manifestations of disease. Understand the importance of treatment of parasitic to avoid complications. Recognize the mode of transmission of the parasite. Discover and discuss the prevention of parasitic diseases.</p>	<p>Responsible research, efficient teamwork and social engagement in learning as part of professional training. Change your attitude about the importance of treatment of parasitosis. Assesses the impact of parasitic diseases and is responsible for the prevention of the same. Efficiently use prevention tools for parasites and teach how to break the chain of transmission of these diseases.</p>
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Toxoplasma Gondii, Plasmodium and Cryptosporidium Parvum.

UNIT VI: MYCOLOGY

Hongos:

Diseases that cause: Allergies, Poisons and Mycoses.

Pathogenesis and diagnosis of mycosis. Superficial mycosis, Middle and Deep.

Dermatophytosis:

Tinea corporis, tinea capitis, tinea cruris, tinea pedis, tinea manuum, Onychomycosis, Tinea incognito and dermatofitides reactions.

Candidiasis:

Pathogenesis, Predisposing Factors. Rating: CANDIDIASIS

SKIN: candidal intertrigo, candidal interdigital intertrigo, paronychia, diaper dermatitis, congenital candidiasis. Mucosal candidiasis: oral candidiasis, vaginal candidiasis, candida balanitis, chronic mucocutaneous candidiasis.

Morphology, Pathogenesis, Symptoms, Common Diseases and Prevention: Cryptococcus neoformans, Histoplasma capsulatum, Blastomyces dermatitidis, Aspergillus, Malassezia furfur and Pneumocystis jirovecii.

Discover the pathogenic effect of fungi and related to the clinical

manifestations of the diseases they cause.

Differentiate between superficial mycoses, intermediate and deep.

Know the risks of deep mycoses.

Recognize the value of the immune system in the development of opportunistic mycoses.

Analyze and review ways to prevent fungal diseases.

Rate health as a factor of human and social development.

Demonstrate responsibility with ones role as an educator for the prevention of diseases.

Increase social commitment and dedication to service in the field of vocational training.

Participate effectively in the exposure of research.

EVALUATION

Final grade is based on...

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| 1. Assignments & Quizzes | 30% |
| 2. Exams | 40% |
| 3. Laboratory/Clinical | 30% |

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