

Republic of Yemen

Ministry of Higher Education & Scientific Research

21 SEPTEMBER UNIVERSITY of MEDICALS & APPLIEED

SCIENCES



Course Specification of Microbiology and Parasitology

Course No. (03 01 823)

2024

Prepared by:	Reviewed by:	Head of the Department:	Quality Unit:	Dean
Dr. Gamel Taher	Dr. Gmdan al Tahsh	Dr.Fares Mahdi	Dr.Fadl Shujaa Aldeen	Dr. Abdulsalam Dallak

Template for Course Specification

I. Course Identification and General Information:				
1	Course Title:	Microbiology and Parasitology		
2	Course Code & Number:	03 01 823		
3	Credit Hours:	Credit Hours	Theory Hours	
			Lecture	Field
		2	2	--
4	Study Level/ Semester at which this Course is offered:	Level2\1term		
5	Pre –Requisite (if any):	None		
6	Co –Requisite (if any):	None		
7	Program (s) in which the Course is Offered:	Bachelor of Anesthesia Technician		
8	Language of Teaching the Course:	English		
9	Study System:	Semester Based System		
10	Mode of Delivery:	Full Time		
11	Location of Teaching the Course:	Faculty of Medical Applied Science		
12	Prepared by:	Associate Prof. Gamel taher		
	Date of Approval:	2024-1446 ^{Ah}		

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Dr. Gamel Taher	Dr. Gmdan al Tahsh	Dr.Fares Mahdi	Dr.Fadl Shujaa Aldeen	Dr. Abdulsalam Dallak

II. Course Description:

This course covers the general study of microbiology and its relevance to nutrition. Topics covered; introduction to microbiology including history and its need in nutrition, general principals of microbial concepts including terminology, host parasite relationship and normal flora, pathogenicity of microorganisms, principals of infectious disease, bacterial structure and classification, bacterial growth, metabolism and its genetics, important pathogenic bacteria and mechanisms of disease production, fungi, protozoa and helminthes, and virology. Also, antiseptics, antibiotics, disinfectant and sterilization techniques will be covered and immunology is offered in order to prepare the students for better understanding of drug pharmacokinetics and disease processes.

III. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)

A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:

a1	Identify and recognize the various forms of bacteria and fungi morphologically – hence a selection of illustration with different microbes as regards staining, growth requirements, isolation and cultivation.	A1	Recognize the knowledge from nursing science, other sciences and disciplines to make judgments relative to the practice of nursing that is based on research findings and evidence.
a2	Demonstrate biochemical reactions and phase of growth of bacteria in various environment	A4	Synthesize theories and concepts from liberal education to build an understanding of the human experience into nursing practice

B. Intellectual Skills: Upon successful completion of the course, students will be able to:

b1	Recognize immune response, immunological products and various levels of body responses to infection.	B2	Value the ideal of lifelong learning to support excellence in nursing practice
b2	Identify basic information on fungi, protozoa and helminthes, and virology.	B3	Utilize awareness, interest and contribute towards advancement of self and of the profession

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C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:			
c1	Apply basic knowledge on microbes to develop fully of information available so as to understand infections and contamination of tissue/system and materials respectively.	C1	Practice as a professional nurse to facilitate human need fulfillment of individuals, families, groups, communities and populations across the lifespan in a variety of healthcare settings
c2	Select microorganisms which show antibiotic activity and fully characterize for further studies and development.	C2	Apply concepts and skills of leadership, management, quality improvement and patient safety in the delivery of high-quality therapeutic nursing interventions for individuals, families, groups, communities
C3	Detect such substances either of natural or synthetic sources as antimicrobial agents and to clarify their respective preservative, antiseptics, antibiotics or		Apply concepts and skills of leadership, management, quality improvement and patient safety in the delivery of high-quality therapeutic nursing interventions for individuals, families, groups, communities
D. Transferable Skills: Upon successful completion of the course, students will be able to:			
d1	Communicate with the patient and his family effectively in professional manner using the principles of communication techniques	D1	Communicate effectively with individuals and groups and members of the health team in order to promote effective interpersonal relationships and teamwork
d2	Discuss the legal and ethical issues that arise in the emergency care setting.	D2	Demonstrate professional, ethical, moral, legal, and spiritual concepts into one's practice within a global environment

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:

Course Intended Learning	Teaching Strategies	Assessment Strategies
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Outcomes			
a1	Identify and recognize the various forms of bacteria and fungi morphologically – hence a selection of illustration with different microbes as regards staining, growth requirements, isolation and cultivation.	- Interactive lecture - Seminars and student presentations - Brain storming, role-play and simulation - Small group for discussing	- Assignments - Quizzes - Mid-term Exam - Final exam - Presentations
a2	Demonstrate biochemical reactions and phase of growth of bacteria in various environment	- Interactive lecture - Seminars and student presentations - Brain storming, role-play and simulation - Small group for discussing	- Assignments - Quizzes - Mid-term Exam - Final exam - Presentations
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
b1	Recognize immune response, immunological products and various levels of body responses to infection.	- Interactive lecture - Brain storming - Role-play & simulation - Small group discussions - Seminars and student presentations	- Assignments - Quizzes - Mid-term Exam - Final exam
b2	Identify basic information on fungi, protozoa and helminthes, and virology.	- Interactive lecture - Brain storming - Role-play & simulation - Small group discussions - Seminars and student presentations	- Assignments - Quizzes - Mid-term Exam - Final exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			

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Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
c1	Apply basic knowledge on microbes to develop fully of information available so as to understand infections and contamination of tissue/system and materials respectively.	- Active learning, - Small group learning. - Learning tasks and activities	- Assignments - Quizzes - Mid-term Exam - Final exam
c2	Select microorganisms which show antibiotic activity and fully characterize for further studies and development.	- Active learning, - Small group learning. - Learning tasks and activities	- Assignments - Quizzes - Mid-term Exam - Final exam
C3	Detect such substances either of natural or synthetic sources as antimicrobial agents and to clarify their respective preservative, antiseptics, antibiotics or	- Active learning, - Small group learning. - Learning tasks and activities	- Assignments - Quizzes - Mid-term Exam - Final exam
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Communicate with the patient and his family effectively in professional manner using the principles of communication techniques	- Classroom discussions, - Problems solving - Case study analysis	- Presentations - Case Studies - Learning activities
d2	Discuss the legal and ethical issues that arise in the emergency care setting.	- Classroom discussions, - Problems solving - Case study analysis	- Presentations - Case Studies - Learning activities

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IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CLOs)
1	UNIT I: MICROBIOLOGY Concept of Microbiology, Bacteriology, Virology, Parasitology and Mycology	- Units of measurement: Micrometer and Nanometer Angstrom - Bacterial Structure: Forced and Optional Elements. Structure and function of each. Physiology, Genetics and Bacterial Growth. Bacterial Shapes and Classification: Coconuts, Bacilli, Spirals, Filamentous and pleomorphic. Normal Flora - Degrees of Infection: Infection inapparent infection. Pathogenicity and Virulence. Colonization, Disease - Distinguish structural, physiological and genetic of bacteria. Recognize the Normal Flora bacteria. Discerning the degree of infection. Awakening cognitive - ability and reasoning in the study of biological phenomena, familiarizing with the scientific method and stimulating their interest in the observation. To develop skills in the rational use of laboratory equipment. - Responsible research, efficient teamwork and social engagement in learning as part of their professional training.	1	2	a1, d2

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2	UNIT II: Bacteriology I Epidemiology, Morphology, Pathogenesis and Basic Prevention	○ Streptococci Staphylococci ○ Neisseria Haemophilus ○ Bordetella Pertussis ○ Corynebacterium Diphtheriae ○ Listeria Monocytogenes ○ Legionella Pneumophila ○ Recognize the transmission mechanism of infection. Develop research on major bacterial pathogens of man. Differentiate between normal flora and pathogenic bacteria. Relate the effect of bacteria pathogenic to the clinical manifestations of disease ○ Participate effectively in exposure research. Demonstrates relevance to the topic, because it increases their training.	1	2	a1, b1
3	UNIT III: Bacteriology II Epidemiology, Morphology, Pathogenesis and Basic Prevention:	Pseudomonas aeruginosa Helicobacter pylori Mycobacterium tuberculosis Clostridium Mycoplasma Campylobacter fetus Campylobacter jejuni Vibrio cholerae Chlamydia Rickettsia Spirochetes -Understand the importance of etiologic diagnosis and clinical laboratory value. Understanding the epidemiology of major bacterial infections. Discover and argue on the prevention of infectious diseases -Understand your role in the health team and affirms its commitment to service and social commitment. Understand their responsibility in the prevention of infectious diseases.	1	2	a1, b1, c1, d1
4	UNIT IV: VIROLOGY	○ Virus: Definition, Structure, Morphology, Viral Replication, Cell Effects, Vertical and	3	6	a1, c1, d1

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		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 ○ 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. ○ 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.			
5	Midterm exam	Midterm exam	1	2	a1, b1, c1, d1

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6	UNIT Parasitology	V:	○ 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, ○ 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	2	4	a2, b2, c2, d2
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		parasitic to avoid complications. Recognize the mode of transmission of the parasite. Discover and discuss the prevention of parasitic diseases. ○ 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			
7	UNIT VI: MYCOLOGY	○ Hongis: 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	3	6	a2, c2, d2

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		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.			
8	UNIT V: Parasitology	○ Symbiosis: Definition. commensalism, mutualism and parasitism. Parasite and Host: Definition forced and facultative parasites. Endo-and ectoparasites. Parasites and Heteroxenos Monoxenous.	3	6	a2, c2, d2.C3

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		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, Strongyloides Stercoralis, Tapeworms, Entamoeba Histolytica, Balantidium Coli, Giardia Lamblia, Trichomonas Vaginalis, ○ 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. ○ Responsible research, efficient			
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		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			
	Final term exam	Final term exam	1	2	a2, b2, c2, d2
Number of Weeks /and Units Per Semester			16	32	

B. Case Studies and Practical Aspect:				
No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
Number of Weeks /and Units Per Semester				

C. Tutorial Aspect:				
No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
Number of Weeks /and Units Per Semester				

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V. Teaching Strategies of the Course:

- Interactive lecture
- Seminars and student presentations
- Brain storming
- Role-play and simulation
- Small group discussion
- Learning tasks and activities
- Problems solving
- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Assignment 1: common abbreviations	W5	5	a1, b1
2	Assignment 2: drug classification	W11	5	a2, b2,
Total			10	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
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1	Assignments	W5,11	10	10%	a1, b1, a2, b2
2	Quizzes 1 & 2	W3, 9	10	10%	a1, a2
3	Mid-Term Theoretical Exam	W7	20	20%	a1, b1, c1, d1
4	Final Theoretical Exam	W16	60	60%	a2, b2, c2, d2
Total			100	100%	

IX. Learning Resources:

- Written in the following order: Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): example مثال

- 1-BOTERO D. 2006. Parasitosis humanas. Corporación para Investigaciones Biológicas: Medellín, Colombia.
- 2- CENTROS PARA EL CONTROL Y PREVENCIÓN DE ENFERMEDADES (CDC). 2010.
<http://www.cdc.gov/>
- 2 • MURRAY P. ROSENTHAL K. Y PFALLER M. 2009. Microbiología Médica - Sexta Edición. Elsevier: Barcelona, España. 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.

2- Essential References:

- PRATS G. 2006. Microbiología Clínica. Médica Panamericana: Madrid, España
- ROMERO R. 2007. Microbiología y Parasitología Humana: bases etiológicas de las enfermedades infecciosas y parasitarias – Tercera Edición. Médica Panamericana: México
- TORTORA G. FUNKE B. Y CASE C. 2007. Introducción a la Microbiología - Novena Edición. Médica Panamericana: Buenos Aires, Argentina
- UNIVERSIDAD DE CAROLINA DEL SUR. 2010. Microbiología e Inmunología On Line.

3- Electronic Materials and Web Sites etc.:

Websites: <http://www.pathmicro.med.sc.edu>

- American Journal of Emergency Medicine
- Annals of Emergency Medicine
- Journal of Emergency Medicine

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- Journal of Trauma and Acute Care Surgery
- Prehospital Emergency Care

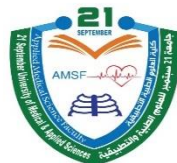
BOTERO D. 2006. Parasitosis humanas. Corporación para Investigaciones Biológicas: Medellín, Colombia. • CENTROS PARA EL CONTROL Y PREVENCIÓN DE ENFERMEDADES (CDC). 2010. <http://www.cdc.gov/>

1. • MURRAY P. ROSENTHAL K. Y PFALLER M. 2009. Microbiología Médica - Sexta Edición. Elsevier: Barcelona, España. 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.

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي)

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University

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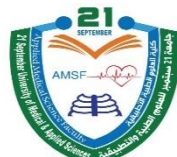
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Course Specification of Microbiology and Parasitology

Course No. (03 01 823)

2024

Template for Course Syllabus

i. معلومات عن أستاذ المقرر Information about Faculty Member Responsible for the Course						
(3 أسابيع)			الساعات المكتبية (أسبوعياً) Office Hours			الاسم Name
الخميس THU	الأربعاء WED	الثلاثاء TUE	الاثنين MON	الأحد SUN	السبت SAT	المكان ورقم الهاتف Location & Telephone No.
						البريد الإلكتروني E-mail

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I. Course Identification and General Information:

1	Course Title:	Microbiology and Parasitology			
2	Course Code & Number:	03 01 823			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Field	
		2	2	--	--
4	Study Level/ Semester at which this Course is offered:	Level2\term1			
5	Pre –Requisite (if any):	None			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Bachelor of Anesthesia Technician			
8	Language of Teaching the Course:	English			
9	Study System:	Semester Based System			
10	Mode of Delivery:	Full Time			
11	Location of Teaching the Course:	Faculty of Medical Applied Science			
12	Prepared by:	Dr. Gamel taher			
13	Date of Approval:	2024-1446 ^{Ah}			

II. Course Description:

This course covers the general study of microbiology and its relevance to nutrition. Topics covered; introduction to microbiology including history and its need in nutrition, general principals of microbial concepts including terminology, host parasite relationship and normal flora, pathogenicity of

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microorganisms, principals of infectious disease, bacterial structure and classification, bacterial growth, metabolism and its genetics, important pathogenic bacteria and mechanisms of disease production, fungi, protozoa and helminthes, and virology. Also, antiseptics, antibiotics, disinfectant and sterilization techniques will be covered and immunology is offered in order to prepare the students for better understanding of drug pharmacokinetics and disease processes.

Course Intended Learning Outcomes (CILOs)

a1. Identify and recognize the various forms of bacteria and fungi morphologically – hence a selection of illustration with different microbes as regards staining, growth requirements, isolation and cultivation.	
a2 . Demonstrate biochemical reactions and phase of growth of bacteria in various environment	
b1	Recognize immune response, immunological products and various levels of body responses to infection.
b2	Identify basic information on fungi, protozoa and helminthes, and virology.
c1	Apply basic knowledge on microbes to develop fully of information available so as to understand infections and contamination of tissue/system and materials respectively.
c2	Select microorganisms which show antibiotic activity and fully characterize for further studies and development.
C3	Detect such substances either of natural or synthetic sources as antimicrobial agents and to clarify their respective preservative, antiseptics, antibiotics or
d1	Communicate with the patient and his family effectively in professional manner using the principles of communication techniques
d2	Discuss the legal and ethical issues that arise in the emergency care setting.

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	
1	UNIT I: MICROBIOLOGY Concept of	- Units of measurement: Micrometer and Nanometer Angstrom - Bacterial Structure: Forced and	2	4	

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	Microbiology, Bacteriology, Virology, Parasitology and Mycology	Optional Elements. Structure and function of each. Physiology, Genetics and Bacterial Growth. Bacterial Shapes and Classification: Coconuts, Bacilli, Spirals, Filamentous and pleomorphic. Normal Flora Degrees of Infection: Infection inapparent infection. Pathogenicity and Virulence. Colonization, Disease ▪ Distinguish structural, physiological and genetic of bacteria. Recognize the Normal Flora bacteria. Discerning the degree of infection. Awakening cognitive ▪ ability and reasoning in the study of biological phenomena, familiarizing with the scientific method and stimulating their interest in the observation. To develop skills in the rational use of laboratory equipment. ▪ Responsible research, efficient teamwork and social engagement in learning as part of their professional training.			
2	UNIT II: Bacteriology I Epidemiology, Morphology, Pathogenesis and Basic Prevention	○ Streptococci Staphylococci Neisseria Haemophilus Bordetella Pertussis Corynebacterium Diphtheriae Listeria Monocytogenes Legionella Pneumophila ○ Recognize the transmission mechanism of infection. Develop research on major bacterial pathogens of man. Differentiate between normal flora and pathogenic bacteria.	2	4	

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		Relate the effect of bacteria pathogenic to the clinical manifestations of disease ○ Participate effectively in exposure research. Demonstrates relevance to the topic, because it increases their training.			
3	UNIT III: Bacteriology II Epidemiology, Morphology, Pathogenesis and Basic Prevention:	Pseudomonas aeruginosa Helicobacter pylori Mycobacterium tuberculosis Clostridium Mycoplasma Campylobacter fetus Campylobacter jejuni Vibrio cholerae Chlamydia Rickettsia Spirochetes -Understand the importance of etiologic diagnosis and clinical laboratory value. Understanding the epidemiology of major bacterial infections. Discover and argue on the prevention of infectious diseases -Understand your role in the health team and affirms its commitment to service and social commitment. Understand their responsibility in the prevention of infectious diseases.	2	4	
4	UNIT IV: VIROLOGY	○ 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,	3	6	

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		Measles, Rubella, Mumps, SARS, Respiratory Syncytial Virus, Coxsackie Virus AB Polio, Rotavirus ○ 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. ○ 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.			
5	Midterm exam	Midterm exam	1	2	
6	UNIT V: Parasitology	○ 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:	2	4	

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		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, Strongyloides Stercoralis, Tapeworms, Entamoeba Histolytica, Balantidium Coli, Giardia Lamblia, Trichomonas Vaginalis, ○ 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. ○ Responsible research, efficient teamwork and social engagement in learning as part of professional training. Change your attitude about the			
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		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			
7	UNIT VI: MYCOLOGY	○ Hongis: 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	3	6	

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		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.			
	Final term exam	Final term exam	1	2	
Number of Weeks /and Units Per Semester			16	32	

B. Case Studies and Practical Aspect:				
No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
Number of Weeks /and Units Per Semester				

C. Tutorial Aspect:

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No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
Number of Weeks /and Units Per Semester				

V. Teaching Strategies of the Course:

- Interactive lecture
- Seminars and student presentations
- Brain storming
- Role-play and simulation
- Small group discussion
- Learning tasks and activities
- Problems solving
- Case study analysis

VI. Assessment Methods of the Course:

- Assignments
- Quizzes
- Mid-term exam
- Final term exam

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Assignment 1: common abbreviations	W5	5	a1, b1
2	Assignment 2: drug classification	W11	5	a2, b2,
Total			10	

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VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	W5,11	10	10%	a1, b1, a2, b2
2	Quizzes 1 & 2	W3, 9	10	10%	a1, a2
3	Mid-Term Theoretical Exam	W7	20	20%	a1, b1, c1, d1
4	Final Theoretical Exam	W16	60	60%	a2, b2, c2, d2
Total			100	100%	

IX. Learning Resources:

- Written in the following order: Author, Year of publication, **Title**, Edition, Place of publication, Publisher.

1- Required Textbook(s) (maximum two): مثال example

- BOTERO D. 2006. Parasitosis humanas. Corporación para Investigaciones Biológicas: Medellín, Colombia. • CENTROS PARA EL CONTROL Y PREVENCIÓN DE ENFERMEDADES (CDC). 2010. <http://www.cdc.gov/>
2. • MURRAY P. ROSENTHAL K. Y PFALLER M. 2009. Microbiología Médica - Sexta Edición. Elsevier: Barcelona, España. 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.

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2- Essential References:

- PRATS G. 2006. Microbiología Clínica. Médica Panamericana: Madrid, España
- ROMERO R. 2007. Microbiología y Parasitología Humana: bases etiológicas de las enfermedades infecciosas y parasitarias – Tercera Edición. Médica Panamericana: México
- TORTORA G. FUNKE B. Y CASE C. 2007. Introducción a la Microbiología - Novena Edición. Médica Panamericana: Buenos Aires, Argentina
- UNIVERSIDAD DE CAROLINA DEL SUR. 2010. Microbiología e Inmunología On Line.

3- Electronic Materials and Web Sites etc.:

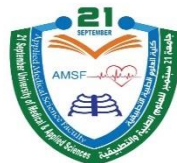
Websites: <http://www.pathmicro.med.sc.edu>

- American Journal of Emergency Medicine
- Annals of Emergency Medicine
- Journal of Emergency Medicine
- Journal of Trauma and Acute Care Surgery
- Prehospital Emergency Care

X. Course Policies: (Based on the Uniform Students' By law (2007) تترك كما هي)

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam,

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	assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

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