Republic of Yemen

Ministry of Higher Education & Scientific Research

21 SEPTEMBER UNIVERSITY for MEDICALS &

APPLIEED SCIENCES

Faculty of **Medical Administration**

Department of Medical Services Administration

Course Specification of

Fundamentals of Microbiology (أساسيات علم الأحياء الدقيقة)

Course No. (**03.03.509**)

1444 هـ

2022/2023

Course Identification and General Information:					
١	**Course Title:**	Fundamentals of Microbiology (أساسيات علم الأحياء الدقيقة)			
٢	**Course Code & Number:**	03.03.509			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2		2
٤	**Study Level/ Semester at which this Course is offered:**	Level ٣ / ٢d Semester			
٥	**Pre –Requisite (if any):**	**General Biology**			
٦	**Co –Requisite (if any):**	Non			
7	**Program (s) in which the Course is Offered:**	Bachelor of Science in Medical Administration			
٨	**Language of Teaching the Course:**	English			
٩	**Study System:**	Regular (semester)			
١٠	**Mode of Delivery:**	Full Time			
11	**Location of Teaching the Course:**	University Campus			
12	**Prepared by:**	Asst.prof. Jamel Taher Abdulmughni			
13	**Date of Approval:**				

Prepared by:	Reviewed by:	Head of the Department:	Vice Dean for Quality affairs	Dean of College:
Asst.prof. Jamel Taher Abdulmughni	Asst.prof .Ghamdan AL tahish	Asst.prof. …….	Asst.prof Mohammed Al-Shamahi	Asst.prof. Jamil Ahsan Mujalli

II. Course Description:

This course covers the general principles of microbiology including classification of different groups of microorganisms and morphology of each groups and parasitology. In addition, a brief introduction to the pathogenicity of each group of microorganisms is also introduced to parasitology [Disease, definitive host intermediated host and diagnostic stage.

1. Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)		Referenced PILOs (مخرجات تعلم البرنامج)
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:		
a1	**Describe** the general properties, structure, and classification of the different groups of microorganisms and parasites.	A2, A5
A2	**understand** the concepts of defense mechanisms, antigen-antibody reaction, and different aspects of immunity and their disorders.	
A3	**Recall** laboratory diagnosis of microbial infections, methods of sterilization and disinfection	
B. Intellectual Skills: Upon successful completion of the course, students will be able to:		
b1	**Recognize** the bacterial morphology, physiology, metabolism, classification, identification, genetics, pathogenesis, and control (including sterilization, disinfection & antibiotics).	B1
b2	**Determine** the causative organism, the habitat, characteristics of pathogenic strains, modes of transmission, and the role of carrier, prophylactic measures and the lines of treatment.	B2

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C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:		
c1	**Observe** the principles of isolation and identification of bacteria (with special reference to principles of staining methods)	C2
c2	**Identify** the different mycotic infections and the modes of their transmission and control.	C4
c3	**Educate** others on how to prevent and control of disease transmission	C4
D. Transferable Skills: Upon successful completion of the course, students will be able to:		
d1	**Communicate** appropriately with staff and college	D1
d2	**use** of the current technology and inventions	D2

III. Intended learning outcomes (ILOs) of the course:

At the end of the course, the student will be able to:

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

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
Describe the general properties, structure, and classification of the different groups of microorganisms and parasites.	Lectures	Exams
understand the concepts of defense mechanisms, antigen-antibody reaction, and different aspects of immunity and their disorders.	Lectures	Exams
Recall laboratory diagnosis of	Lectures	Exams

microbial infections, methods of sterilization and disinfection		

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	**Teaching strategies**	**Assessment Strategies**
Recognize the bacterial morphology, physiology, metabolism, classification, identification, genetics, pathogenesis, and control (including sterilization, disinfection & antibiotics).	Role play PPL Training	Exams Lab Reports
Determine the causative organism, the habitat, characteristics of pathogenic strains, modes of transmission, and the role of carrier, prophylactic measures and the lines of treatment.	Role play PPL Training	Exams Lab Reports

©Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
Observe the principles of isolation and identification of bacteria (with special reference to principles of staining methods)	- Lectures - Practical sessions	Exams
Identify the different mycotic infections and the modes of their transmission and control.	- Lectures - Practical sessions	Exams
Educate others on how to prevent and control of disease transmission	- Lectures - Practical	Exams

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	sessions	

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
Communicate appropriately with staff and college	Homework	Group research
use of the current technology and inventions	Homework	Group research

III. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	contact hours
1	**Introduction to microbiology**	· History of microbiology · Definition of microbiology · Definition of microorganism · Important of studding microbiology · Types of microorganisms · Factors affecting growth and transmission of microorganism	3	9
2	**Bacteria**	· Definition · Types of bacteria · Factors affecting in growth and transmission · The ways of transmission · The ways of prevention of transmission	2	6
3	**Viruses**	· Definition · Types of viruses · Factors affecting in growth and transmission · The ways of transmission · The ways of prevention of	1	3

		transmission		
4	**Fungi**	· Definition · Types of fungi · Factors affecting in growth and transmission · The ways of transmission · The ways of prevention of transmission	1	3
5	Med tem exam		1	3
6	**Parasite**	· Definition · Types of parasite · Factors affecting in growth and transmission · The ways of transmission · The ways of prevention of transmission	1	3
7	Protozoa	E-Histolytic Gardaí Plasmodium	1	3
8	Helminthes	A-**Nematode** A scares ***fasciola*** hepatica Schist soma spp. **C-Cestoda** Tapeworms Echinococcus granulosus Hymenolepis diminuta	4	12
9	Introductions to immunology	Structure and function	1	3
10	Final exam		1	3

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	Number of Weeks /and Units Per Semester		**16**	**48**

B - Practical Aspect: (if any)

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Introduction	**1**	**2**	
2	Laboratory Safety Measures	**1**	**2**	
3	Microscopy	**1**	**2**	
4	Introduction to Diagnosis of Bacterial Infections	**1**	**2**	
5	Bacterial Stains	**1**	**2**	
6	Bacterial Stains	**1**	**2**	
7	Bacterial Culture Media	**1**	**2**	
8	Midterm Exam	**1**	**2**	
9	Antibiotic Sensitivity Testing	**1**	**2**	
10	Antibiotic Sensitivity Testing	**1**	**2**	
11	Sterilization & Disinfection	**1**	**2**	
12	Parasite [Adult ,larva eggs}	**1**	**2**	
Number of Weeks /and Units Per Semester				

V. Teaching Strategies of the Course:

1-	Lectures

Prepared by:	Reviewed by:	Head of the Department:	Vice Dean for Quality affairs	Dean of College:
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2-	Practical session
3-	Self leaning
4	Group research

VI. Assessment Methods of the Course:

No	Assignment	
1	**Written Exams (Short Essays) and Quizzes**	A1.
2	Written Exams(MCQ)	
3	Structured Oral Exams	
4	Objective Structured Practical Exams (OSPE)	
5	Student presentation	

VII. Assignments:

No.	Assignments	Week Due	Mark	Proportion of Final Assessment	Aligned CILOs (symbols)
1	**Midterm Exam**	7	15	15%	A,b,c,d
2	**Activity**	Throughout the semester	5	5%	b
3	Practical Report	Throughout the semester	10	10 %	C
4	**Practical exam**	12	20	20%	C

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5	**Final Exam**	14	50	50%	
Total					

Learning Assessment:					
No.	**Assessment Tasks***	**Week due**	**Mark**	**Proportion of Final Assessment**	**Aligned CILOs**
1	**Midterm Exam**	7	20	20%	
2	**Practical exam**	12	30	30%	
3	**Final Exam**	14	50	50%	
Total			100	100%	

VIII. Learning Resources:	
1- Required Textbook(s) (maximum two).	
	Jawetz, Melnick, & Adelberg's Medical Microbiology, 28e **Riedel, Stefan** Published by McGraw-Hill Education, 2019 ISBN 10: 1260012026ISBN 13: 9781260012026
2- Essential References.	
	Warren Levinson, Peter Chin-Honh, Elizabeth A. Joyce, Jesse Nussbaum and Brian Schwartz, Review of Medical Microbiology and Immunology, 2018, 15th edition, McGraw-Hill, ISBN: 978-1-259- 64449-8
3- Electronic Materials and Web Sites *etc*.	
1	http://www.asmusa.org\
2	http://www.phage.org/black09.htm

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3	http://www.microbe.org/microbes/virus_or_bacterium.asp
4	http://www.microbelibrary.org
5	http://www.bact.wisc.edu/Bact330/330Lecturetopics

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

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Second Part of Course Specification

Faculty of **Medical Administration**

Department of Medical Services Administration

Course Plan (Syllabus) of Fundamentals of Microbiology (أساسيات علم الأحياء الدقيقة)
Course No. (03.03.509)

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member:	**Asst.prof. Jamel Taher Abdulmughni**						
Location& Telephone No.:							
E-mail:		SAT	SUN	MON	TUE	WED	THU
Office Hours							

Course Identification and General Information:					
١	**Course Title:**	Fundamentals of Microbiology (أساسيات علم الأحياء الدقيقة)			
٢	**Course Code & Number:**	03.03.509			
3	**Credit Hours:**	**Credit Hours**	**Theory Hours**		**Lab. Hours**
			Lecture	**Exercise**	
		3	2		2
٤	**Study Level/ Semester at which this Course is offered:**	Level ٣ / ٢d Semester			
٥	**Pre –Requisite (if any):**	**Epidemiology**			
٦	**Co –Requisite (if any):**	Non			
7	**Program (s) in which the Course is Offered:**	Bachelor of Science in Medical Administration			
٨	**Language of Teaching the Course:**	English			
٩	**Study System:**	Regular (semester)			

Prepared by:	Reviewed by:	Head of the Department:	Vice Dean for Quality affairs	Dean of College:
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١٠	**Mode of Delivery:**	Full Time
11	**Location of Teaching the Course:**	University Campus
12	**Prepared by:**	Dr. Jamel Taher Abdulmughni
13	**Date of Approval:**	

II. Course Description:

This course covers the general principles of microbiology including classification of different groups of microorganisms and morphology of each groups and parasitology. In addition, a brief introduction to the pathogenicity of each group of microorganisms is also introduced to parasitology [Disease, definitive host intermediated host and diagnostic stage.

Course Intended Learning Outcomes (CILOs) : (مخرجات تعلم المقرر)	
B. Knowledge and Understanding: Upon successful completion of the course, students will be able to:	
a1	**Describe** the general properties, structure, and classification of the different groups of microorganisms and parasites.
a2	**Recognize** in each individual case of viral infection, the source of infection, modes of transmission and the role of carrier, pathogenesis, diagnosis, and the prophylactic measures.
a3	**understand** the concepts of defense mechanisms, antigen-antibody reaction, and different aspects of immunity and their disorders.
a4	**Recall** laboratory diagnosis of microbial infections, methods of sterilization and disinfection
B. Intellectual Skills: Upon successful completion of the course, students will be able to:	
b1	**Recognize** the bacterial morphology, physiology, metabolism, classification, identification, genetics, pathogenesis, and control (including sterilization,

	disinfection & antibiotics).
b2	**Determine** the causative organism, the habitat, characteristics of pathogenic strains, modes of transmission, and the role of carrier, prophylactic measures and the lines of treatment.
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:	
c1	**Observe** the principles of isolation and identification of bacteria (with special reference to principles of staining methods)
c2	**Idifferent** mycotic infections and the modes of their transmission and control.
c3	**Educate** others on how to prevent and control of disease transmission
D. Transferable Skills: Upon successful completion of the course, students will be able to:	
d1	**Communicate** appropriately with staff and college
d2	**use** of the current technology and inventions

III. Course Content:

	A – Theoretical Aspect:			
Order	**Units/Topics List**	**Learning Outcomes**	**Sub Topics List**	**contact hours**
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2	**Bacteria**	· Definition · Types of bacteria · Factors affecting in growth and	2	6

		transmission · The ways of transmission · The ways of prevention of transmission		
3	**Viruses**	· Definition · Types of viruses · Factors affecting in growth and transmission · The ways of transmission · The ways of prevention of transmission	1	3
4	**Fungi**	· Definition · Types of fungi · Factors affecting in growth and transmission · The ways of transmission · The ways of prevention of transmission	1	3
5	Med tem exam		1	3
6	**Parasite**	· Definition · Types of parasite · Factors affecting in growth and transmission · The ways of transmission · The ways of prevention of transmission	1	3
7	Protozoa	E-Histolytic Gardaí Plasmodium	1	3
8	Helminthes	A-**Nematode** A scares ***fasciola*** hepatica	4	12

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		Schist soma spp. **C-Cestoda** Tapeworms Echinococcus granulosus Hymenolepis diminuta		
9	Introductions to immunology	Structure and function	1	3
10	Final exam		1	3
	Number of Weeks /and Units Per Semester		**16**	**48**

B - Practical Aspect: (if any)

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Introduction	**1**	**2**	
2	Laboratory Safety Measures	**1**	**2**	
3	Microscopy	**1**	**2**	
4	Introduction to Diagnosis of Bacterial Infections	**1**	**2**	
5	Bacterial Stains	**1**	**2**	
6	Bacterial Stains	**1**	**2**	
7	Bacterial Culture Media	**1**	**2**	
8	Midterm Exam	**1**	**2**	
9	Antibiotic Sensitivity Testing	**1**	**2**	
10	Antibiotic Sensitivity Testing	**1**	**2**	

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11	Sterilization & Disinfection	**1**	**2**	
12	Parasite [Adult ,larva eggs}	**1**	**2**	
Number of Weeks /and Units Per Semester				

VII. Assignments:

No.	Assignments	Week Due	Mark	Proportion of Final Assessment	Aligned CILOs (symbols)
1	**Midterm Exam**	7	15	15%	A,b,c,d
2	**Activity**	Throughout the semester	5	5%	b
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Total					

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Total		100	100%	

V. Teaching strategies of the course:

Lecture
Practical sessions
Role play
PPL Training
Group research

VIII. Learning Resources:

1- Required Textbook(s) (maximum two).

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