



Microbiology Written test blueprint

Course Title: Biology and Microbiology

Course Description: This course is designed to introduce the 3rd year undergraduate Thi-Qar medical college students to the principles and practices of microbiology. The course will cover the basics of type of microbes , bacteria ,viruses, fungi, immunology, and its medical importance.

Course Duration: 90 hours of theory and 60 hours of practice

Course learning Units: 13 units .

Main learning objectives of Microbiology :

- 1- The teaching of theoretical and practical sides of clinical and basic sciences such as medical biology for students in first stage and also each of Parasitology and Microbiology (Immunology, Bacteriology and Virology) for students in third stage of medicine student.
- 2- The establishment of courses in the diagnosis of bacterial, viral, fungal and parasitic diseases.
- 3- The Contribution to work in the field of laboratory diagnosis, through the placement of the branch employees to work in the laboratories of governorate hospitals.
- 4- Participation in many scientific and medical conferences in the field of clinical and pure sciences inside and outside the country.
- 5- Collaboration with the central and braches of teaching hospital labs in completing all practices and experiments needed in the covering of health problems in our geographical region.

(Medical Biology Course Blueprint – 1st year)

1) Cell Biology

Week No.	Lecture Name	lecturer	ILO	Assessment Method					
				Summative			Formative		
				Written	practical	Log book	Quiz	Group discussion	Project homework
1	Introduction to Cell Biology 2	Dr. Zainab Dakhil	K:6.21 AB: 5	X			X		
2	Introduction to Cell Biology 2	Dr. Zainab Dakhil	K:6,21 S: 3	X			X		
3	Tools of cell biology	Dr. Faten Naeem	K:1,6 S:1	X	X	X	X	X	
4	Composition of The cell 1	Dr. Zainab Dakhil	K:1 S:1,4	X	X	X	X	X	X
5	Composition of The cell 2	Dr. Zainab Dakhil	K:1,4,5 S:1,3,4,7,13,17,18, 21, 23 24 AB, 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
6	Composition of The cell 3	Dr. Zainab Dakhil	K:1,4,5 S:1,3,4,7,13,17,18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
7	Cell structure 1	Dr. Faten Naeem	K:1,4,5 S:1,3,4,7,13,17, 18, 21,	X	X	X	X	X	X

			23, 24 AB: 1, 3, 4, 5, 8, 9							
8	Cell structure 1	Dr. Faten Naeem	K:1,4,5,6 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X	X	
9	Plasma membrane 1	Dr. Faten Naeem	K:1,4,5,6 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X		
10	Plasma membrane 2	Dr. Faten Naeem	K:1,4,5,6 S:1,3,4,7,13 , 17, 18, 21, 23,24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X	
11	How molecules cross the plasma membrane 1	Dr. Faten Naeem	K:1,4,5 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X	
12	How molecules cross the plasma membrane 2	Dr. Faten Naeem	K1,4,5 S1,3,4,7,13. 17, 18, 21, 23 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X	X	
13	Cell division 1	Dr. Zainab Dakhil	K4,5,6 S1,3,4,7,13, 17, 18, 21, 23, 24 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X	X	

14	Cell division 2	Dr. Zainab Dakhil	K:1,4,5 S:1,3,4,7,13, 17, 18, 21, 23, 24 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X	X
15	Cell division 3	Dr. Zainab Dakhil	K:1,4,5 S:1,3,4,7,13, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
16	Cell division 4	Dr. Zainab Dakhil	K1,4,5,6,11 S1,3,4,7,13, 17, 18, 21, 23, 24 AB:, 1,3, 4,5,8, 9	X	X	X	X	X	
17	Energy	Dr. Faten Naem	K1,4,5,6 S1,3,4,7,13, 17, 18, 21, 23, 18, 21, 23, 24 AB:1, 3, 4, 5, 8, 9	X	X	X	X	X	X
18	Energy	Dr. Faten Naem	K1,4,5 S1,3,4,7,13, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
19	Introduction to Histolgy	Dr.Faten Naem	K: 6, S:1,3,4,7,13, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	
20	The types of cells	Dr.Faten Naem	K:1,4,5 S:1,3,4,7,13, 17, 18, 21, 23, 24 AB : 1, 3,	X	X	X	X	X	

			4, 5, 8,9							
21	Epithelial tissues	Dr.Faten Naeem	K:1,4,5,6 S:1,3,4,7,13, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X	
22	Epithelial tissues	Dr.Faten Naeem	K:1,4,5 S:1,3,4,7,13, 17, 18, 21, 23, 24 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X		
23	Stratified epithelium	Dr. Zainab Dakhil	K:1,4,5 S:1,3,4,7,13, 17, 18, 21, 23, 24 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X		
24	Glandular epithelial tissues	Dr. Zainab Dakhil	K:1,4,5 S:1,3,4,7,13, 17, 18, 21, 23, 24 AB:1, 3, 4, 5, 8, 9	X	X	X	X	X	X	
25	Type of Connective tissues	Dr. Zainab Dakhil	K:1,4,5 S:1,3,4,7,13, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X		
26	Type of Connective tissues	Dr. Zainab Dakhil	K:1,4,5,6 S:7,13, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X		
27	Type of the duct, type of secretion	Dr. Zainab Dakhil	:K:1,4,5 S1,3,4,7,13, 17, 18, 21, 18, 21, 23, 24	X	X	X	X	X	X	

			AB : 1, 3, 4, 5, 8,9							
28	Adipose tissues	Dr.Faten Naeem	K:1,4,5 S:1,3,4,7,13, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X	
29	Skeletal tissues	Dr.Faten Naeem	K1,4,5 S1,3,4,7, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X	
30	Bone tissues	Dr.Faten Naeem	K6	X	X	X	X	X		12
	Muscular tissues	Dr.Faten Naeem	K1,4,5 S1,3,4,7, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X	
	Nervous tissues	Dr.Faten Naeem	K1,4,5 S1,3,4,7, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X		

(Microbiology- Course Blueprint – 3rd year)

Week No.	Lecture Name	lecturer	ILO	Assessment Method					
				Summative			Formative		
				Written	practical	Log book	Quiz	Group discussion	Project homework
				1	Introduction to Immunology in Laboratory	Dr. Talib Hasan	K:6.21 AB: 5	X	
2	Antigen (Ab-Ag) reaction (hemagglutination	Dr. Talib Hasan	K:6,21 S: 3	X			X		
3	Ab-Ag) reaction (precipitation)	Dr. Talib Hasan	K:1,6 S:1	X	X	X	X	X	
4	Electrophoretic Techniques (Immuno electrophoresis)	Dr. Talib Hasan	K:1 S:1,4	X	X	X	X	X	X
5	Ab-Ag reaction (complement fixation)	Dr. Talib Hasan	K:1,4,5 S:1,3,4,7,13,17,18, 21, 23 24 AB, 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
6	Ab-Ag reaction (ELISA) and Immunoblot	Dr. Talib Hasan	K:1,4,5 S:1,3,4,7,13,17,18, 21, 23, 24 AB: 1, 3, 4, 5, 8. 9	X	X	X	X	X	X
7	Ab-Ag reaction (Immunofluorescence test and	Dr. Talib Hasan	K:1,4,5 S:1,3,4,7,13	X	X	X	X	X	X

	Radio immuno-assay)		, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9						
8	Cell isolation, Cell counting and functional assessment	Dr. Talib Hasan	K:1,4,5,6 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X	X
9	Introduction to Virology	Dr. Mohammed Shallal	K:1,4,5,6 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	
10	Virus Isolation: using three living systems	Dr. Mohammed Shallal	K:1,4,5,6 S:1,3,4,7,13 , 17, 18, 21, 23,24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
11	Demonstration on Tissue Culture used for virus isolation	Dr. Mohammed Shallal	K:1,4,5 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
12	Inoculation of clinical sample in living system	Dr. Mohammed Shallal	K1,4,5 S1,3,4,7,13. 17, 18, 21, 23 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X	X
13	Tools and biosafety	Dr. Saad Abdul Aziz	K4,5,6 S1,3,4,7,13, 17, 18, 21, 23, 24	X	X	X	X	X	X

			AB : 1, 3, 4, 5, 8,9						
14	Sterilization	Dr. Saad Abdul Aziz	K:1,4,5 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X	X
15	Antibiotic susceptibility test	Dr. Saad Abdul Aziz	K:1,4,5 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
16	Methods of bacterial counting and measuring bacterial growth	Dr. Saad Abdul Aziz	K1,4,5,6,11 S1,3,4,7,13, 17, 18, 21, 23, 24 AB:, 1,3, 4,5,8, 9	X	X	X	X	X	
17	Bacterial staining	Dr. Saad Abdul Aziz	K1,4,5,6 S1,3,4,7,13, 17, 18, 21, 23, 18, 21, 23, 24 AB:1, 3, 4, 5, 8, 9	X	X	X	X	X	X
18	Culturing media	Dr. Saad Abdul Aziz	K1,4,5 S1,3,4,7,13, 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
19	Growth characteristics	Dr. Saad Abdul Aziz	K: 6, S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	
20	General urine examination	Dr. Saad Abdul Aziz	K:1,4,5 S:1,3,4,7,13 , 17, 18 ,	X	X	X	X	X	

			21, 23, 24 AB : 1, 3, 4, 5, 8,9						
21	Biochemical tests	Dr. Saad Abdul Aziz	K:1,4,5,6 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB: 1, 3, 4, 5, 8, 9	X	X	X	X	X	X
22	Staphylococci	Dr. Saad Abdul Aziz	K:1,4,5 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X	
23	Streptococci	Dr. Saad Abdul Aziz	K:1,4,5 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB : 1, 3, 4, 5, 8,9	X	X	X	X	X	
24	Neisseria and the rest of the bacteria	Dr. Saad Abdul Aziz	K:1,4,5 S:1,3,4,7,13 , 17, 18, 21, 23, 24 AB:1, 3, 4, 5, 8, 9	X	X	X	X	X	X

II) Ninety hours practical labs : 8 groups: 2Hrs/days for each group/30 weeks / year:

Practical part:

Learning objective 1 (knows) :including learning all knowledge related to medical biology, different types of cells, all tools used in this science.

Learning objective 2 (Knows how) : To make easy to understand how to know everythings related methods used for preparation of practical work.

Learning objective 3 (shows): To show all aspects and steps of practical work easy to handle by students.

learning objective 4 (shows how) : To adapt student how they follow all steps independently.

Course evaluation form:

The educational objectives were also used to develop a course evaluation form. The form comprises three sections in which students are asked to rate general course characteristics, accomplishment of the general objectives, and usefulness of several learning activities. In addition, students are asked to write comments and suggestions for improvement.

These three formal student evaluations provide documentation on student achievement on almost all of the objectives. Examples from each section are shown in the table below.

TABLE: COURSE EVALUATION FORM (students feedback)

A- Course analysis

	Very strongly Disagree	Strongly disagree	Disagree	Agree	Strongly agree	Very strongly disagree
In general :						
1-The course objectives were well defined .	0	1	1	3	4	6
2- the course was well organized.	0	1	1	3	4	6
3- the lectures were informative.	0	1	1	3	4	6
4- I saw an adequate number and variety of microbes.	0	1	1	3	4	6
As a result of this course:						
5- I have reach a through approach of diagnostic microbiology .	0	1	1	3	4	6
6- I can incorporate microbiology with other medical approaches .	0	1	1	3	4	6

B-Please indicate how help each of the followings in your learning

	Did not attend	Not at all helpful	Minimally helpful	Reasonably helpful	Very helpful	Maximally helpful
1-Lectures	0	1	2	3	4	5
2- slides, tests, and reports.	0	1	2	3	4	5
3- discussion.	0	1	2	3	4	5
4-Teaching file	0	1	2	3	4	5
5-Internet subject report	0	1	2	3	4	5

Analysis of results : method to analyze data collected using a **Likert scale**

1. Assign numerical values to each response option on the scale. For example, you could assign 1 to "strongly disagree," 2 to "disagree," 3 to "neutral," 4 to "agree," and 5 to "strongly agree."
2. Calculate the mean score for each statement by summing the numerical values for all responses to that statement and dividing by the number of respondents. This will give you an average score for each statement.
3. Interpret the results by considering the mean scores for each statement. Statements with higher mean scores are more positively rated by respondents, while statements with lower mean scores are less positively rated.

Summary :

This approach has allowed the clerkship to be flexible enough to accommodate varying student abilities and interests while also assuring coverage of core concepts and materials.

Conclusion:

The above curriculum design provides a comprehensive framework for teaching and assessing Microbiology in an undergraduate medical college. The course includes a mix of theoretical and practical sessions, the teaching methods and assessment methods. The ILOs, general objectives, and specific objectives are well-defined, which will enable students to achieve a thorough understanding of microbiology.

Assessment Methods:

The course will use the following assessment methods:

1. Written exams (short essay questions ,long essay , MCQ, Cross match) : to assess the students' knowledge and understanding of the theory.
2. Practical exams (slides , tests and spots): to assess the students' ability to identify common microbes.
3. Formative assessment :
 - Quizzes in class after most topics
 - Group discussion in class
 - Projects homework : lab reports, advanced microbiology .

Grading and Evaluation:

The grading system for the course will be as follows:

- Written midyear exam = 20%
- Activities (Discussion = 2 %, home work =3%)
- Formative (quizzes =15 %)
- Practical exam (Midyear)= 10 %
- Practical exam (final)= 15 %
- written final exam = 35 %
- Total 100 %
- Pass mark = 50%

Textbooks approved: Medical Microbiology by Jawetz , E.T. (2018)

Lecturers :

- 1- Prof Dr. Talib Hasan Ali – Immunology – Microbiology Department .
- 2- Ass. Prof Dr. Mohammed Jassim Shalal – virology - Microbiology Department.
- 3- Ass. Prof Dr. Saad Abdulazeez Atia – bacteriology- Microbiology Department
- 4- Ass. Prof Dr. Zainab Dakil Dgaim – bacteriology- Microbiology Department.
- 5- Ass. Prof Dr. Fatin Naem abbas – bacteriology- Microbiology Department
- 6- Lecturer. Dr. Entedar A. Jaafer – virology- Microbiology Department