



# Course Specification

— (Bachelor)

Course Title: **Microbiology for Nursing**

Course Code: **NRS 246**

Program: **Bachelor of Nursing**

Department: **Basic Nursing Department**

College: **College of Nursing**

Institution: **Majmaah University**

Version: **V4**

Last Revision Date: **June 2023**



## Table of Contents

<b>A. General information about the course:</b> .....	3
<b>B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods</b> .....	4
<b>C. Course Content</b> .....	6
<b>D. Students Assessment Activities</b> .....	7
<b>E. Learning Resources and Facilities</b> .....	7
<b>F. Assessment of Course Quality</b> .....	8
<b>G. Specification Approval</b> .....	9



## A. General information about the course:

### 1. Course Identification

1. Credit hours: (2 units (1+1+0) )

#### 2. Course type

A.  University  College  Department  Track  Others  
B.  Required  Elective

3. Level/year at which this course is offered: (Level 3 / Year 2)

#### 4. Course general Description:

This course is an introduction to the pathogenic microorganisms of humans including bacteria, viruses, and fungi with a major emphasis on bacteriology and aseptic techniques and the impact of microbes on everyday life. Further, this course uses a hands-on approach to investigate microbial growth and factors that impact growth and the interactions of microbes with biotic and abiotic environments.

5. Pre-requirements for this course (if any):

None

6. Pre-requirements for this course (if any):

None

#### 7. Course Main Objective(s):

This course introduces nursing students to investigate the pathogenic lifestyle, particularly for bacterial pathogens, from the host as well as the pathogen perspective. It will explore the role of pathogens in the development of the human immune response, the presentation of symptoms and disease caused by microbial infections, and the diagnosis and treatment of microbial infections. Also, it reveals the role of nurses in preventing the transmission of these pathogens.

### 2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	15	33
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> <li>• Traditional classroom</li> <li>• E-learning</li> </ul>		
4	Distance learning		



No	Mode of Instruction	Contact Hours	Percentage
5	Practical	30	67

### 3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	15
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (specify)	
<b>Total</b>		<b>45</b>

## B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and understanding</b>			
K1.1	List the most important disease-causing organisms: bacteria, viruses, protozoans, fungi, and worms. Classification and characteristics.	K1	Lecture, & class discussion by teacher, Textbook assignments, homework & practice, daily re-looping of previously learned material	Sessional exam, Final exam, Homework/ assignments, Quizzes, and Written lab reports
K1.2	State the sources, modes of transmission and describe the pathogenesis of the diseases produced by the microorganisms.	K1	Lecture, & class discussion by teacher, Textbook assignments, homework & practice, daily re-looping of previously learned material	Sessional exam, Final exam, Homework/ assignments, Quizzes, and Written lab reports
K2.1	Summarize the role of the host in infectious	K2	Lecture, & class discussion by	Sessional exam, Final exam,





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	disease, including natural barriers to infection, innate and acquired immune responses to infection, and inflammation.		teacher, Textbook assignments, homework & practice, daily re-looping of previously learned material	Homework/ assignments, Quizzes, and Written lab reports
K3.1	Summarize mechanisms of animal defenses to infection, including primary defenses, innate immunity, and acquired immunity.	K3	Lecture, & class discussion by teacher, Textbook assignments, homework & practice, daily re-looping of previously learned material	Sessional exam, Final exam, Homework/ assignments, Quizzes, and Written lab reports
<b>2.0</b>	<b>Skills</b>			
S1.1	Plan and interpret laboratory investigations for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiologic agents.	S1	Lecture, small group discussion, case studies, individual presentation, brainstorming.	Sessional exam, Final exam, Homework/ assignments, Quizzes, and Written lab reports
S1.2	Demonstrate effective verbal and nonverbal communication skills needed to interact with patients and other healthcare professionals.	S1	Lecture, small group discussion, case studies, individual presentation, brainstorming.	Sessional exam, Final exam, Homework/ assignments, Quizzes, and Written lab reports
<b>3.0</b>	<b>Values, autonomy, and responsibility</b>			
V1.1	Using certain equipment and instruments in performing laboratory tests for diagnosis and follow up of clinical conditions studied in the course.	V1	The students are encouraged to sum up briefly regarding the topics covered in each lecture. Submission of assignments pertaining to certain topics.	By observing behavior of students in the classroom with their peer group





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
V1.2	Perform the methods of sterilization and disinfection to prevent and control infections.	V1	The students are encouraged to sum up briefly regarding the topics covered in each lecture. Submission of assignments pertaining to certain topics.	By observing behavior of students in the classroom with their peer group
...				

### C. Course Content

No	List of Topics	Contact Hours
1.	<b>Unit 1: Introduction to Microbiology.</b> Organisms studied in microbiology (prokaryotic and eukaryotic), The nature microbiological problems, The history of microbiology. <b>Lab:</b> General Laboratory Precautions	1
2.	<b>Unit 2: Normal microbial flora of the body</b> <b>Lab:</b> Aseptic techniques & methods of sterilization	1
3.	<b>Unit 3: Infectious disease:</b> Transmission of disease, kinds of pathogen, factors influencing disease transmission, bacterial disease, types of pathogens, Viral Pathogenesis, Parasitic and Fungal Infections. <b>Lab:</b> Microscopy, simple staining, gram staining, and acid-fast staining	2
4.	<b>Unit 4: Medical Bacteriology:</b> Bacterial Growth, the clinical significance of bacteria, types of bacteria, gram-positive <i>cocci Staphylococcus, Streptococcus</i> (Morphology, pathogenesis/disease caused). <b>Lab:</b> Modified Kinyoun's staining, endospore staining, capsule staining, and negative staining	2
5.	<b>Unit 5: Non-spore forming Gram positive bacilli aerobes/ anaerobes</b> <i>Cornybacterium diphtheria, Listeria monocytogenes, N. asteroides, Actenomyces Israelii, Mycobacterium</i> Spore forming Gram-positive bacilli: aerobes/ anaerobes: <i>Bacillus, Clostridium</i> (pathogenesis/disease caused). <b>Lab:</b> Anaerobic culture and Indole test	1
6.	<b>Unit 6: Gram negative Cocci</b> <i>Nesseria, Acitobacter</i> <b>Gram negative Bacilli:</b> <i>E. coli, Klebsiella, Salmonella; and H. pylori, Vibrio &amp; Spirochaetes</i> (pathogenesis/disease caused) <b>Lab:</b> Methyl red test (MR) and Voges-Proskauer test (VP)	1
7.	<b>Unit 7: Virology</b>	2





	Introduction to human viruses, virus classification, general chemical and physical properties of viruses, the structure and infection cycle of viruses, viral pathogenesis. <b>Lab:</b> Citrate utilization test, urease test and hydrogen sulphide test	
8.	<b>Unit 8: Medical Mycology</b> <b>Lab:</b> Oxidase test and Catalase test	1
9.	<b>Unit 9: Medical Parasitology</b> (Classification of medical parasitology) and General characteristics of medically important parasites (Protozoa, Helminths, Arthropods) <b>Lab:</b> Microbiological analysis of sputum and microbiological analysis of UTI	2
10.	<b>Unit 10: Host defense</b> The innate immune response, the adaptive immune response, failures of the immune response <b>Lab:</b> Antibiotic susceptibility	1
11.	<b>Unit 11: Control and Treatment</b> Control of microbial growth with disinfectants and antiseptics, antibiotics, antibiotic resistance <b>Lab:</b> Final Exam	1
<b>Total</b>		<b>45</b>

## D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	6- 7th week	10%
2.	Midterm Exam	11- 12th week	30%
3.	Lab Assessment	8th week	15%
4.	Seminars/Poster Presentation/Assignments	4th and 8th week	5%
5.	Final Practical	14th or 15th week	10%
6.	Final Exam	17 - 18th week	30%

\*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

## E. Learning Resources and Facilities

### 1. References and Learning Resources

<b>Essential References</b>	<b>Adora, D.R. (2021). Essentials of Applied Microbiology for Bsc Nursing Students (2nd Ed.). CBS Publishers &amp; Distributors.</b>
<b>Supportive References</b>	<b>Sastry, A.S., &amp; Bhat, S. (2022). Essentials of Applied Microbiology for Nurses Including Infection Control and Safety.</b>





	<p><b>Microbiology Allied Health Sciences and Nurses</b>  <a href="http://www.academia.edu/1083402/MICROBIOLOGY_ALLIED_HEALTH_SCIENCES_and_NURSES">http://www.academia.edu/1083402/MICROBIOLOGY_ALLIED_HEALTH_SCIENCES_and_NURSES</a></p>
<b>Electronic Materials</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.sdl.edu.sa">www.sdl.edu.sa</a></li> <li>• <a href="http://www.emedicine.com">www.emedicine.com</a></li> <li>• <a href="http://www.medscape.com">www.medscape.com</a></li> </ul>
<b>Other Learning Materials</b>	<p>Paul G. Engelkirk; Janet Duben-Engelkirk (2018). <b>Burton's Microbiology for the Health Sciences</b>. LWW. North American Edition 11th Edition.</p> <p>Kumar, S. (2018). <b>Textbook of Microbiology for Diploma in General Nursing and Midwifery Students</b>.</p> <p>Anthikad Jacob, Sumanaswini P. <b>Medical Microbiology for Nurses (Including Parasitology) 2013</b>. Jp Medical Ltd; 1 edition</p> <p>Benathen, I.A. <b>Microbiology with Health Care Applications</b>. 2nd edition (2001) Star Publications.</p>

## 2. Required Facilities and equipment

Items	Resources
<p><b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)</p>	<p><b>Lecture rooms should be large enough to accommodate 30 students</b>  <b>Practical Rooms should be large enough to accommodate 20 students</b></p>
<p><b>Technology equipment</b> (projector, smart board, software)</p>	<p><b>Every classroom must be equipped with smart or active board, latest Audio-visual aids and computer with internet access.</b></p>
<p><b>Other equipment</b> (depending on the nature of the specialty)</p>	<p><b>NA</b></p>

## F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	CES, SES, PES Quality of Exam Survey	CES, SES, PES Quality of Exam Survey
	CLO Mapping with teaching & assessment. Course Blueprinting Grade Analysis	CLO Mapping with teaching & assessment. Course Blueprinting Grade Analysis





Assessment Areas/Issues	Assessor	Assessment Methods
	Psychometric Analysis	Psychometric Analysis
	Management Review	Management Review
Effectiveness of Students' assessment	DAS	DAS
	Grade Verification	Grade Verification
Quality of learning resources	CES, SES, PES	CES, SES, PES
	FES, CR	FES, CR
	Management Review	Management Review
The extent to which CLOs have been achieved	DAS, CR	DAS, CR
	Management Review	Management Review
Other		

**Assessors** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

### G. Specification Approval

<b>COUNCIL /COMMITTEE</b>	<b>DEPARTMENT COUNCIL</b>
<b>REFERENCE NO.</b>	<b>4</b>
<b>DATE</b>	<b>19.09.2023</b>

