Course Description FormPrinciples of Microbiology

1. CourseName:
Principles of Microbiology
2. CourseCode:
PRMB205
3. Semester /Year:
First semester / second phase. Plant Protection Department / 2024-2025
4. DescriptionPreparation Date:
1/2/2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
75 hour/ 3.5 units
7. Course administrator's name(mention all,if more than one name)
.D. Alaa Hamed Muhammad M.M. Rayan Salem Mahmoud
8. Course Objectives
1. The learner will be able to understand bacteria and the information that must be provided in naming pathogenic bacteria 2. YRow Symptoms caused by plant-pathogenic bacteria, identifying the stages of bacterial development and how to diagnose them 3. Distinguishing between pathogenic and non-pathogenic bacteria to plants and the differences between them and other microorganisms 4. Full knowledge of the stages of bacterial growth and reproduction and the factors that affect them 5. Identify the enzymes that bacteria use against their plant hosts 6. Recognize the morphological characteristics of bacteria 7. Learn about the classification, formation, differentiation and adaptation of plant pathogenic bacteria 8. Choose suitability The antibacterial effect of some agents on bacteria 9. EnumeratetheBiotransformations and regulation of vital energy activities in bacteria 10. Study of the genetics of bacteria that cause plant diseases 11. The student learns about the blue-green tree, its importance, its characteristics, its reproduction, and its nutrition

9. Teaching and learning strategies

- Interactive lecture
- Brainstorming
- Dialogue and discussion
- Field Training
- Practical exercises
- Field project
- Self-education

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical	**b3:**The student explains the development of microbiology and its division	A historical overview of the development of microbiology and the sections and branches of microbiology	Audio methods. Style Writing on the board	Short testQuiz
	3 practical	**:**a2The student learns about the laboratory, equipment, and tools AndConditions to be observed and laboratory safety in the plant pathology laboratory	Laboratory safety conditions and identifying the tools and equipment that must be available in the microbiology laboratory	Assigning tasks and reporting	Short testQuiz
2	2 theoretical	**a2:**The student learns about the symptoms caused by plant pathogenic bacteria and how to diagnose them	Symptoms caused by plant pathogenic bacteria and how to diagnose them	Audio methods. Style Writing on the board	Short testQuiz
	3 practical	**b3**: The student applies the sterilization process in the laboratory	Sterilization, its types and uses	Assigning tasks and reporting	Short testQuiz
3	2 theoretical	**a2:**The student learns about bacteria and the differences between them and	Bacteria and the functions of their parts and explanation And Differences between it and other microscopic	Audio methods. Style Writing on the board	Short testQuiz

		other pathogens	organisms		
	3 practical	**b4:**The student experiences how to use a microscope to diagnose microorganisms	The microscope, its composition, types, and how to use it	Assigning tasks and reporting	Short testQuiz
4	2 theoretical	**a2:**The student learns about the stages of bacterial growth, their methods of reproduction, and the factors that affect them	Stages of bacterial growth, their phases, reproduction, and factors that affect bacterial growth	Audio methods. Style Writing on the board	Short testQuiz
	3 practical	**b4**:The student experiences the most important nutritional media for the development of bacteria that cause plant diseases	Nutrient media, their composition and types	Assigning tasks and reporting	Short testQuiz
5	2 theoretical	**a4:**The student discusses how to enzymatically analyze plant cell contents due to bacterial enzymes	Bacterial enzymes	Audio methods. Style Writing on the board	Report and discuss
	3 practical	**b1:**The student sees laboratory bacteria and what types they are	Bacteria, their structure and types in nature	Assigning tasks and reporting	Report and discuss
6	2 theoretical	**a4:**The student leads discussion sessions on the morphological characteristics of bacteria	Study of bacterial morphological characteristics	Audio methods. Style Writing on the board	Semester test1+a lecture
	3 practical	**b4:**The student examines bacteria isolated from plant parts, soil, and water	Isolating bacteria from plants, soil and water	Assigning tasks and reporting	Semester test1+ practical application

7	2 theoretical	**a1:**The student writes a report on the basis of classification and division of bacteria	Classification of bacteria	Audio methods. Style Writing on the board	Short testQuiz
	3 practical	**b3**: The student applies how to prepare glass slides to diagnose bacteria	How to make permanent and temporary laboratory slides+ Scientific visit	Assigning tasks and reporting	Short testQuiz
8	2 theoretical	**a4:**The student discusses how bacteria are formed and distinguished	Formation and differentiation of bacteria	Audio methods. Style Writing on the board	Short testQuiz
	3 practical	**b3:**The student applies differential and selective media to distinguish between bacterial genera	The differential and selective media on which bacteria grow	Assigning tasks and reporting	Short testQuiz+ Homework
9	2 theoretical	**a2:**The student learns about bacterial adaptation	Bacterial adaptation	Audio methods. Style Writing on the board	Short testQuiz+ Homework Short testQuiz+ Homework
	3 practical	**b4 :**The student distinguishes between the genera of bacteria	Diagnosis of bacterial colonies	Assigning tasks and reporting	Short testQuiz+ Homework
10	2 theoretical	**a2:**The student learns about the antagonistic effect of some agents on bacteria	The antagonistic effect of some agents on bacteria	Audio methods. Style Writing on the board	Short test Quiz
	3 practical	**b4 :**The student experiments with the process of staining bacteria	Bacterial staining	Assigning tasks and reporting	Short test Quiz

11	2 theoretical	**a2:**The student explains the biological activities of bacteria	Biological activities of bacteria in nature	Audio methods. Style Writing on the board	Short test Quiz
	3 practical	**b4 :**The student experiments with biological tests to diagnose bacteria	Biochemical tests	Assigning tasks and reporting	Short test Quiz
12	2 theoretical	**a2:**The student learns about the vital energy transformations in bacteria	Bioenergy transformations	Audio methods. Style Writing on the board	Short testQuiz
	3 practical	**b4 :**The student examines commercial systems for diagnosing bacteria	Bacterial diagnosis using rapid commercial systems	Assigning tasks and reporting	Short test Quiz+ Homework
13	2 theoretical	**a2:**The student describes organizing vital events	Organizing vital energy activities	Audio methods. Style Writing on the board	Short testQuiz
	3 practical	a2: The student describes how the plant recognizes the nature of the bacteria attacking it.	The student describes how the plant recognizes the nature of the bacteria attacking it.	Assigning tasks and reporting	Short test Quiz+ Homework
14	2 theoretical	**b2:**The student organizes a lecture on bacterial genetics	Bacterial genetics	Audio methods. Style Writing on the board	Semester test2+a lecture
	3 practical	**b3:**The student analyzes the quantification of bacterial growth	Quantification of bacterial growth	Assigning tasks and reporting	Semester test2+ practical application
15	2 theoretical	a4: The student discusses resistance to bacterial plant diseases.	The student discusses resistance to bacterial .plant diseases	Audio methods. Style Writing on the board	Report and discuss

	3 practical	**b3:**The student experiments with the infection process of bacteria on a plant The student must be able to prove pathogenicity in the field	Infecting plants with bacteria and proving their pathogenicity in the field	Assigning tasks and reporting	Report and discuss

11. Course Evaluation

Relative weight %	Class	Calendar date (week)	Calendar methods	T
2	2	the sixth week	Short test(1)Quiz	1
2	2	The fourteenth week	Short test(2)Quiz	2
10	10	The seventh week	Semester test (1)	3
10	10	The eleventh week	Semester test (2)	4
40	40	Final semester exams	Final theoretical test	5
5	5	The fifteenth week	Report and discuss	6
5	5	The third and fifth week	Report and discuss	7
2	2	The first week	Short practical test (1)Quiz	8
2	2	fourth week	Short practical test (2)Quiz	9
2	2	The fourteenth week	Short practical test (3)Quiz	10
20	20	Final semester exams	Final practical test	11
100%	100%	100	the total	

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Book (General Plant Diseases - Abdul Hamid Khaled Khudair)
Main references (sources)	The book (Plant Diseases - Facilitator Majeed Jarhis, Raqeeb Akef Al-Ani, and Iyad Abdel-Wahed Al-Hiti) Book (Plant Diseases - Jihad Muhammad Al-Habaa and Mahmoud Shaker Mustafa - Arab Republic of Egypt)
Recommended books and references (scientific journals, reports...)	Plant Diseases Book (written by Dr. George Agrios, University of Massachusetts, Boston United States of America - Translated by Dr. Mahmoud Musa Abu Arqoub
Electronic References, Websites	Home Feed | ResearchGate

Theoretical teacher. Dr. Alaa Hamed Muhammad

Practical teacher: Rayan Salem Mahmoud