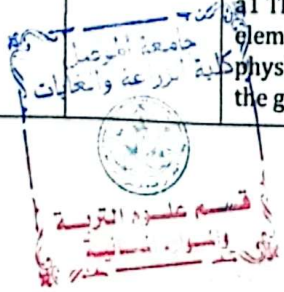
Course Description Form Principles of microbiology

1. Course Name:	
Principles of microbiology	
2. Course Code:	
PRMB205	
3. Semester / Year:	
First fall semester / 2024-2025	
4. Description Preparation Date:	
1\ 9 \ 2024	
5. Available Attendance Forms:	
In presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical + 3 practical / 3.5 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Rand Abdalhade Gazal & M.Dr. Mohamad Ayad Harbawee	
8. Course Objectives	
Theoretical - Enabling the student to understand everything related to microbiology - Enable the student to know the classification of microorganisms - Enabling the student to become familiar with the ways of living microorganisms - Enabling the student to reveal the relationship of microorganisms to ea other - The student can understand the relationship between microorganisms Humans and soil	Practical –Enabling the student to understand microbiology a its life applications –Enable the student to use a microscope and examine samples –Knowing the different types and shapes of microorganisms through their dyeing – Enable the student to prepare slides for examina and measure bacterial movement –The student judges the different sterilization meth and their efficiency – Enabling the student to prepare suitable culture media for microorganisms
9. Teaching and Learning Strategies	
Theoretical - Interactive lecture - Brainstorming - Dialogue and discussion - Assigning reports - Conducting monthly and daily examinations	Practical Interactive lecture –Discussion, dialogue, brainstorming –Conducting laboratory experiments –Assigning reports – Conducting daily and monthly examinations

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretical	theoretical b1 The student demonstrates the concept and its origin Microbiology	theoretical Introduction to microbiology and the stages of its developme	Interactive lecture, brainstorming, dialogue and discussion, self-learning	theoretical audio methods, Writing on the board direct dialogue style
	3 practical	practical b7 The student learns about science Microbiology the microscope and how to use it	practical Microscope and its use	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises field project, self-learning	practical Assigning tasks and reports
2	2 Theoretical	theoretical c1 The student becomes famili with the characteristics of living things Culture microscopy and chemical	theoretical Morphological characteristics For microbiology	Interactive lecture, brainstorming, dialogue and discussion, self-learning	theoretical audio methods, Writing on the board direct dialogue style
	3 practical	practical b8 The student can prepare Slides and staining of bacteria with Gram stain	practical Gram stain	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises field project, self-learning	practical Assigning tasks and reports
3	2 Theoretical	theoretical b2 The student hits a wall cell and structures external to bacteria	theoretical External structures of bacte	Interactive lecture, brainstorming, dialogue and discussion, self-learning	theoretical audio methods, Writing on the board direct dialogue style
	3 practical	practical c4 The student gets to know bacteria acid resistant, dyed and tested	practical Acid-fast bacteria	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises field project, self-learning	practical Assigning tasks and reports
4	2 Theoretical	theoretical b3,b4 The student hits a wall Cell and structures external to bacteria	theoretical External structures of bacte	Interactive lecture, brainstorming, dialogue and discussion, self-learning	theoretical audio methods, Writing on the board direct dialogue style
	3 practical	practical b9 Distinguish vegetative cells fro spores	practical Painting blackboards	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises field project, self-learning	practical Assigning tasks and reports
5	2 Theoretical	theoretical c2 The student gets to know th contents Cytoplasm and bacterial movement	theoretical Internal structures of bacteria	Interactive lecture, brainstorming, dialogue and discussion, self-learning	theoretical audio methods, Writing on the board direct dialogue style
	3 practical	practical d2 Enable the student to opera Microbiology laboratory equipment	practical Laboratory equipment Microbiology	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, field project, self-learning	practical Assigning tasks and reports
6	2 Theoretical	theoretical a1 The student recognizes the elements nutritional and physical factors that affect the growth of microorganisms	theoretical Microbiology developme	Interactive lecture, brainstorming, dialogue and discussion, self-learning	theoretical audio methods, Writing on the board direct dialogue style



	3 practical	practical b10 The student can see the movement of bacteria Under the microscope	practical Examination of bacterial movement by hanging dro	interactive lectures brainstorming, dialogue and discussion, field training, practical exercises field project, self learning	practical Assigning tasks and reports
7	2 Theoretical	theoretical a7 The student is familiar with the food environment its components and types	theoretical Food environments	interactive lectures brainstorming, dialogue and discussion self learning	theoretical audio methods Writing on the board direct dialogue style
	3 practical	practical b11 The student is able to use a hemocytometer slide	practical Count bacteria by Hemocytometer slide	interactive lectures brainstorming, dialogue and discussion, field training, practical exercises field project, self learning	practical Assigning tasks and reports
8	2 Theoretical	theoretical a8 The student judges the growth curves of microorganisms and their methods of reproduction	theoretical Microorganism growth curves	interactive lectures brainstorming, dialogue and discussion self learning	theoretical audio methods Writing on the board direct dialogue style
	3 practical	practical c8 Scientific visit	practical Scientific visit	interactive lectures, brainstorming, dialogue and discussion, field training, practical exercises field project, self learning	practical Assigning tasks and reports
9	2 Theoretical	theoretical a8 The student learns about direct and indirect bacteria counting methods	theoretical Types of farms and counting methods bacteria	interactive lectures, brainstorming, dialogue and discussion, self learning	theoretical audio methods Writing on the board direct dialogue style
	3 practical	practical c9 The student will be able to cou the bacteria in milk samples	practical Testing and estimating the number of bacteria in milk	interactive lectures, brainstorming, dialogue and discussion, field training, practical exercises field project, self learning	practical Assigning tasks and reports
10	2 Theoretical	theoretical a4 The student is familiar with fu And mold and its importance	theoretical General characteristics of fungi	interactive lectures, brainstorming, dialogue and discussion, self learning	theoretical audio methods Writing on the board direct dialogue style
	3 practical	practical c7 The student can Count the bacteria after cultivatio	practical Count bacteria by Molded dishes	interactive lectures, brainstorming, dialogue and discussion, field training, practical exercises field project, self learning	practical Assigning tasks and reports
11	2 Theoretical	theoretical a5 The student is judged exterior For molds and their uses	theoretical Methods of mold reproduct its types and uses	interactive lectures, brainstorming, dialogue and discussion, self learning	theoretical audio methods Writing on the board direct dialogue style
	3 practical	practical b12 The student can collect Samples from different sources	practical Count bacteria by molded dishes	interactive lectures, brainstorming, dialogue and discussion, field training, practical exercises field project, self learning	practical Assigning tasks and reports
12	2 Theoretical	theoretical b6 The student explains the definition Yeasts and their types And uses	theoretical Yeasts	interactive lectures, brainstorming, dialogue and discussion, self learning	theoretical audio methods Writing on the board direct dialogue style

	3 practical	practical b13 The student learns about methods Various sterilizations and ways to use it	practical Sterilization	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises field project, self-learning	practical Assigning tasks and reports
13	2 Theoretical	theoretical d1 The student knows the definiti Fungi and their types And its uses	theoretical Fungi	Interactive lecture, brainstorming, dialogue and discussion, self-learning	theoretical audio methods, Writing on the board direct dialogue style
	3 practical	practical b14 The student gets to know Examinations and tests validity of water and its microbial content	practical Water tests	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises field project, self-learning	practical Assigning tasks and reports
14	2 Theoretical	theoretical e1 Student governed definition Viruses and clarification Its types and ways of infection	theoretical Viruses	Interactive lecture, brainstorming, dialogue and discussion, self-learning	theoretical audio methods, Writing on the board direct dialogue style
	3 practical	practical e3 The student can Preparing the culture media Different and necessary For the growth of microorganisms	practical Cultivation media	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises field project, self-learning	practical Assigning tasks and reports
15	2 Theoretical	theoretical e2 The student is familiar with th relationship between living things Soil microstructure	theoretical The relationship of microorganisms with soil	Interactive lecture, brainstorming, dialogue and discussion, self-learning	theoretical audio methods, Writing on the board direct dialogue style
	3 practical	practical d3 The student reviews the curriculum in detail and fast	practical review	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises field project, self-learning	practical Assigning tasks and reports

11. Course Evaluation

	Evaluation	Time of evalution	Degree	Relative weight
1	Theoretical final report + practical experience reports	Theoretical week 15. Practical week 1-15	7 Theoretical + 6 Practical	13%
2	Short test Quiz1	3 Week	4 Theoretical + 2 practical	6%
3	Midterm exam (theoretical and practical)	9 Week	10 theoretical + 5 practical	15%
4	Short test 2 Quiz	12 Week	4 Theoretical + 2 practical	6%
5	Final practical test	Practical exams week	20%	20%
6	Final theoretical test	The week of theoretical exams	40%	40%
Sum			100%	100%

Theoretical subject teacher: . Dr. Rand Abdalhade Gazal

practical subject teacher: M. Dr. Mohammad Ayad Harbawi

Department Head: Khalid anwar khalid

Chairman of the Scientific Committee: Abdel Qader Abash Sabak