Theoretical and practical course plan form - Ilam University of Medical Sciences

\* Introduction to the course: General Microbiology \* First semester:

\* School: Paramedical \* Department: Microbiology

\* Course Name and Number: General Microbiology

\* Field and Degree: B.Sc. in Laboratory Science, Semester 3

\* Day and time: Wednesday 10-8 \* Venue: Paramedical School

\* Name of the person in charge of the course (instructor):

\* Prerequisite courses: None

\* Office address: \* Address:

**General Objective of the course**: Familiarity of students with the general characteristics of bacteria, pathogenicity, diagnosis and treatment of bacterial diseases

**Behavioral goals** (behavioral goals have an audience, behavioral verb, degree and criteria and conditions of performance)

1) - Introduction and students' familiarity with the importance of microorganisms - Comparison of eukaryotes and prokaryotes

2) Morphology and anatomical structure of bacteria

3) Anatomical structure of bacteria

4) Genetics of bacteria

5) The relationship between host and pathogen

6) Bacterial metabolism

7) Methods for classifying and naming bacteria

8) The effect of physical and chemical factors on bacteria

9) Antimicrobial compounds and antibiotics

10) Methods for determining antibacterial susceptibility

11) The microflora of the human body

12) Familiarity with different types of microscopes - methods for staining bacteria

13) Nutritional requirements and necessary conditions for the growth and multiplication of bacteria - Classification of different culture media

14) How to grow and isolate bacteria from clinical samples - general count

**Student tasks** (student assignments during the semester): Students should be able to learn some of the issues raised in the specific and general objectives of the lesson and be able to explain them while attending class on time.

**Specific goals**

• The student should be able to:

• Students become familiar with a variety of methods for classifying bacteria.

• Students become familiar with different types of light microscopes.

• The student can fully describe the structure of bacteria.

• The student can identify the needs for the growth and multiplication of bacteria.

• The student gets acquainted with different types of culture media and knows how to grow bacteria.

• The student should be familiar with bacterial metabolism and describe the types of fermentation and respiratory metabolisms.

• The student should be fully acquainted with the genetic structures of microorganisms such as genomes, plasmids, transposons and know the types of gene transfer methods. The student knows the morphology and appearance of bacteria.

• The student should know the types of biochemical methods in detecting bacteria and how to use them.

• The student knows the types of physical and chemical factors affecting bacteria.

• Students become familiar with antibiotics and antimicrobial agents.

• The student gets acquainted with different types of colors and knows the differential culture media.

• The student can define the types of bacterial pathogens and explain the mechanism of bacterial pathogenesis.

• The student should be familiar with various methods for determining the susceptibility of bacteria to antimicrobial agents

**Main sources** (observing the principles of source writing and giving an address for their preparation, including library, bookstore, internet, ......)

1- Moray Medical Microbiology book or its translation (latest edition)

1- Medical Microbiology, P.R. Murray (latest edition)

2- Medical Microbiology, Jawetz (latest ed) 2016

**Teaching methods and teaching aids used:**

1- Content is presented using PowerPoint. If there is a need for explanation and the student wants to provide more explanation, the writing process on the whiteboard is used.

2- After a presentation of about 25-30 minutes, students are given the opportunity to discuss the items explained in groups of 5-6 or two, and then a member of the group is selected to give brief explanations. And he is allowed to talk about the lesson for about 7-10 minutes. In each session there is the possibility of 2 to three group discussions in class.

Methods and time of assessment and evaluation of the student and the bar related to each evaluation: (Type of exams in terms of how to design a question - loading - time of exams and assignments should be mentioned)

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| --- | --- | --- | --- |
| method | Score | date | time |
| Quiz, group discussion, seminar | 2 |  |  |
| midterm | 8 |  |  |
| End of semester | 10 |  |  |

Course Name: General Microbiology Field: Laboratory Science Semester 3 School: Paramedical

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| Session | day | time | date | topic | lecturer |
| 1 | Wednesday | 8-10 |  | History of Microbiology |  |
| 2 | Wednesday | 8-10 |  | Classification of bacteria |  |
| 3 | Wednesday | 8-10 |  | Bacterial morphology, structure, cell wall and its synthesis 1 |  |
| 4 | Wednesday | 8-10 |  | Bacterial morphology, structure, cell wall and its synthesis 2 |  |
| 5 | Wednesday | 8-10 |  | Bacterial metabolism 1 |  |
| 6 | Wednesday | 8-10 |  | Bacterial metabolism 2 |  |
| 7 | Wednesday | 8-10 |  | Growth physiology |  |
| 8 | Wednesday | 8-10 |  | Genetics of bacteria 1 |  |
| 9 | Wednesday | 8-10 |  | Genetics of bacteria 2 |  |
| 10 | Wednesday | 8-10 |  | Common microbial flora and pathogens in humans |  |
| 11 | Wednesday | 8-10 |  | Disinfectants, disinfectants and sterilization1 |  |
| 12 | Wednesday | 8-10 |  | Disinfectants, disinfectants and sterilization2 |  |
| 13 | Wednesday | 8-10 |  | Antibiotics 1 |  |
| 14 | Wednesday | 8-10 |  | Antibiotics 2 |  |
| 15 | Wednesday | 8-10 |  | Toxigenesis and study of the relationship between host and microorganisms1 |  |
| 16 | Wednesday | 8-10 |  | Toxigenesis and study of the relationship between host and microorganism2s |  |