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

\* Introduction to the course: General Microbiology Laboratory \* Semester:

\* School: Paramedical \* Department: Microbiology

\* Course Name and Number: Practical Microbiology

\* Field and Degree: BSc in Laboratory Science, Semester 3

\* Day and time: Monday 12-10 and 4-2 \* Venue: Paramedical School

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

\* Prerequisite courses: None

\* Office address: \* Email address:

**General purpose of the course**: Familiarity of the student with the laboratory environment and familiarity with practical methods of identifying bacteria

**The general topics of this course include the following:**

1) Familiarity with practical microbiology tools and their application in medical microbiology

2) Staining of bacteria, observation of gram-positive and gram-negative slides

3) Direct microbial slide, observation of movement, spores and capsules of bacteria

4) Preparation of solid, semi-solid and liquid culture media

5) How to cultivate and separate bacteria from different clinical samples of bacterial colony count

6) Cultivation on some common differential and selective environments

7) Performing some enzymatic and biochemical methods, including catalase, oxidase, guagolase, etc.

8) Performing a method to determine the susceptibility of bacteria to antimicrobial compounds

**Specific goals**

The student must be able to:

1- The student should get acquainted with the shape and morphology of bacteria.

2- The student should know the morphology and appearance of bacteria.

3- The student should get acquainted with different types of light microscopes.

4- The student should get acquainted with different types of culture media and know how to grow bacteria.

5- The student should be familiar with the cultivation and sterilization of microbial equipment and environments.

6- The student should know the types of biochemical methods in detecting bacteria and get acquainted with how to use them.

7- The student should get acquainted with different types of colors and know the differential culture media.

8- The student should get acquainted with various methods for determining the susceptibility of bacteria to antimicrobial agents

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

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

Mahon's book on diagnostic microbiology

Baily & scotts Diagnostic Microbiology

**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- Relevant practical materials along with the basis of tests, staining and culture media are explained and a sample will be done by the expert to observe the students.

2- Students begin to perform the practical work described under the supervision of the professor and the laboratory expert.

4- Our group discussion is done between the students with the relevant professor or experienced laboratory expert.

• Methods and time of assessment and evaluation of the student and the bar related to each assessment:

|  |  |  |  |
| --- | --- | --- | --- |
| method | score | date | time |
| quiz, group discussion, work report based on group format | 2 |  |  |
| End of semester | 18 |  |  |
|  |  |  |  |

Course Name: AZ-General Microbiology Field: Laboratory Science Semester 3G1 School: Paramedical

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| session | day | date | time | topic | lecturer |
| 1 | Monday |  | 8-10 | Introduction to Bacteriology Laboratory, Safety tips and tools |  |
| 2 | Monday |  | 8-10 | Microscope (dissection, procedure and examination of the prepared slides) |  |
| 3 | Monday |  | 8-10 | Sterilization (Four, Autoclave) |  |
| 4 | Monday |  | 8-10 | Identification of different culture media, manufacturing methods and sterilization (filter, tendalnization) |  |
| 5 | Monday |  | 8-10 | Techniques for isolation, culture and transfer of microbial samples |  |
| 6 | Monday |  | 8-10 | Preparation of microbial spread, gram and simple staining and microscopic examination |  |
| 7 | Monday |  | 8-10 | Fast acid staining (performed) - flagellum and nuclear material (theory) |  |
| 8 | Monday |  | 8-10 | Spore staining (examination) of capsules and fat granules (theory) |  |
| 9 | Monday |  | 8-10 | Albert Staining (perform and Checking) and Special Staining (Theory) |  |
| 10 | Monday |  | 8-10 | Antibiogram (disk diffusion) |  |
| 11 | Monday |  | 8-10 | Antibiogram (MIC, MBC, Etest) |  |
| 12 | Monday |  | 8-10 | Fermentation of carbohydrates in media (KIA, TSI and IMViC) |  |
| 13 | Monday |  | 8-10 | H2S production test in different cultures, urease and nitrate, phenylalanine-lysine-bile tests |  |
| 14 | Monday |  | 8-10 | Catalase and coagulase tests, oxidase and CAMP and OF tests |  |