



In the Name of God
Faculty of Medicine
Department of Microbiology
Semester Lesson Plan

Course Title: Practical Bacteriology for the Medical Program
Semester Offered: First half of the 1404–1405 academic year
Degree and Major: Doctor of Medicine (International Program)
Target Group: 4th-semester medical students
Class Schedule: Saturday, 10–12
Location: Microbiology Laboratory (Faculty of Medicine)
Credits: 0.59 units
Prerequisites: None
Instructor: Dr. Mansour Khaledi
Contact: 09136766429 (Saturday to Wednesday)
Office Hours: During regular working hours
Office Address: Instructor's office, 1st floor, Microbiology Laboratory, Faculty of Medicine
Email: mansoor.khaledi@yahoo.com

General Objective

To familiarize students with the principles of laboratory work in medical microbiology and the procedures for identifying medically important bacteria.

Specific Objectives

By the end of this course, the student should be able to:

1. Understand laboratory safety principles in microbiology.
2. Learn basic laboratory techniques in microbiology.
3. Become familiar with microbiology lab equipment.
4. Understand the principles of working with a light microscope.
5. Understand staining principles and techniques, including Gram, capsule, and spore staining.

6. Prepare smears and perform four-quadrant streaking.
7. Understand different culture media (physical and chemical properties).
8. Conduct antibiotic susceptibility testing (antibiogram) and interpret results.
9. Culture and identify Gram-positive cocci (Staphylococcus, Streptococcus).
10. Identify Enterobacteriaceae and interpret biochemical tests.
11. Perform urine, stool, and blood cultures and interpret results

Main References

1. Jawetz, Melnick & Adelberg's Medical Microbiology (latest edition)
2. Medical Microbiology by Murray (latest edition)
3. Bailey & Scott's Diagnostic Microbiology (latest edition)
4. Koneman's Color Atlas and Textbook of Diagnostic Microbiology (latest edition)

Evaluation

During the course:

- Practical performance in each session: 4 points
- Lab report submission for each session: 2 points
- Class participation, discipline, and attendance: 2 points

End of course:

- Final exam (practical and written): based on all course topics

Attendance policy:

- ✓ Attendance is mandatory and recorded each session.
- ✓ 0.25 points deducted per absence.
- ✓ Excessive unexcused absences are reported to the Faculty Education Office.

Weekly Schedule (Practical Microbiology, Semester 1404–1405)

Week	Date	Session Topic	Instructor	Student Preparation
1	19/07/1404	Introduction to laboratory instruments, laboratory safety, and sterilization methods	Dr. Khaledi	Wear lab coat
2	26/07/1404	Sampling methods, smear preparation, and Gram staining	Dr. Khaledi	Study lab manual, wear

				lab coat
3	03/08/1404	Capsule and spore staining techniques	Dr. Khaledi	Study lab manual, wear lab coat
4	10/08/1404	Types of culture media (physical & chemical), inoculation methods, four-quadrant streaking, and media preparation	Dr. Khaledi	Study lab manual, wear lab coat
5	17/08/1404	Antibiotic sensitivity testing (Antibiogram) and interpretation	Dr. Khaledi	Study lab manual, wear lab coat
6	24/08/1404	Culture and identification of Gram-positive cocci (Staphylococci)	Dr. Khaledi	Study lab manual, wear lab coat
7	01/09/1404	Culture and identification of Gram-positive cocci (Streptococci)	Dr. Khaledi	Study lab manual, wear lab coat
8	08/09/1404	Selective and differential media and biochemical tests for Enterobacteriaceae	Dr. Khaledi	Study lab manual, wear lab coat
9	15/09/1404	Urine specimen collection, culture, colony counting, and interpretation	Dr. Khaledi	Study lab manual, wear lab coat
10	22/09/1404	Blood culture (BACTEC method)	Dr. Khaledi	Study lab manual, wear lab coat

Midterm Exam: Scheduled according to departmental timetable.

Final Exam: Scheduled according to departmental timetable.

Additional Student Guidelines

- ✓ Actively participate in discussions.
- ✓ Maintain punctuality and discipline.
- ✓ Submitting research projects earns extra credit toward the final exam.
- ✓ Follow all safety and procedural principles during laboratory sessions.

Examples of Session Objectives

Session 1 – Laboratory Safety and Sterilization

Students will learn safety protocols, lab equipment handling, light microscopy, and sterilization

techniques.

Session 2 – Gram Staining and Smear Preparation

Students will practice smear preparation and perform Gram staining with correct technique.

Session 5 – Antibiotic Susceptibility Testing

Students will conduct disk diffusion testing, interpret antibiograms, and understand β -lactamase resistance mechanisms (ESBL, MBL).

Session 7 – Streptococcus Identification

Students will practice hemolysis observation, use of biochemical tests (such as bile esculin agar, NaCl tolerance), and candle jar method.

Session 9–10 – Clinical Sampling Methods

Students will learn proper collection of blood, urine, stool, CSF, wound, throat, and ear samples.

Teaching Method: Lecture and laboratory practice.

Instructor Signature: Dr. Mansoor Khaledi

Head of Department: Dr. Behnam Zamanzad

EDO Officer:

Submission Date:

Confirmation: Initial course design approved by the Department Head.