



**Department of ...Biology.....**

**College of .....Science.....**

**University of .....Salahaddin.....**

**Subject: Practical General Microbiology**

**Course Book – Year 2**

**Assistant Lecturer: Niga Othman Hamaameen**

**Academic Year: 2022-2023**

## Course Book II

<b>1. Course name</b>	<b>General Microbiology</b>
<b>2. Lecturer in charge</b>	<b>Assistance lecturer/ Niga Othman Hamaameen</b>
<b>3. Department/ College</b>	<b>Biology/Science</b>
<b>4. Contact</b>	<b>e-mail: niga.hamaameen@su.edu.krd</b>
<b>5. Time (in hours) per week</b>	<b>Practical: 6/week</b>
<b>6. Office hours</b>	<b>6 hours</b>
<b>7. Course code</b>	
<b>8. Teacher's academic profile</b>	<p><b>Assistant Lecturer:- Niga Othman Hamaameen</b>  <b>I graduated from Salahaddin University in 2006, worked as assistant biology for three years and assist in many labs. Histology and embryology lab., molecular lab., microbiology lab., genetic lab., general biology and ecophysiology lab. In 2013 I finished my MSc degree and started as Assistant Lecturer Teaching in 2015.</b>  <b>I have become member in Biological syndicate in 2007.</b></p>
<b>9. Keywords</b>	<b>Microbiology,bacteria, cell wall.....</b>
<p><b>10. Course overview:</b>  The importance of studying these subjects to understanding microbiology and learn how to deal with many instruments in the lab during working as a microbiologist especially how to use microscope which is the first and forever friend for any biologist, student able to make slides and identify different types of microorganisms during this year study using different test, staining techniques and lab index.  Microbiology is a wide field including different types of microorganisms (bacteria, fungi, viruses...etc) which are closely related to our daily life.</p>	
<p><b>11. Course objective:</b>  Define the science of microbiology and describe some of the general methods used in the study of microorganisms  Discuss the historical concept of spontaneous generation and the experiments that were performed to disprove this erroneous idea  Describe some of the various activities of microorganisms that are beneficial to humans  Describe procaryotic and eucaryotic morphology, the two types of cellular anatomy, and also the distribution of microorganisms among the various kingdoms or domains in which living organisms are categorized  Discuss the importance of the field of microbiology to other areas of biology and to general human welfare</p>	
<p><b>12. Student's obligation</b>  * Attendance to the lab on time.  * Preparation for sudden exam for the previous lab (quiz).  * Must be wearing lab coat, gloves and have bibulous paper with them to clean the</p>	

microscopes after use .

- \* Treat all microorganisms as potential pathogens.
- \* Sterilize equipment and materials.
- \* Disinfect work areas before and after use. ...
- \* Wash your hands before leaving the laboratory.
- \* Never pipette by mouth.
- \* Do not eat or drink in the lab, nor store food in areas where microorganisms are stored.
- \* Label everything clearly.
- \* Long hair should be secured behind your head to minimize fire hazard or contamination of experiments.
- \* Always wipe and clean the lenses of your microscope before putting it away. Use the appropriate tissue paper and cleaning solution for this purpose.
- \* If you are injured in the laboratory, immediately contact your course instructor or TA.
- \* Spills, cuts and other accidents should be reported to the instructor or TA in case further treatment is necessary.

### **13. Forms of teaching**

Different forms of teaching will be used to reach the objectives of the course: black board, paper printing, power point presentations for the head titles and definitions also for explaining the microorganisms we use slides either prepared by the students themselves or previous prepared slides (by company ).

### **14. Assessment scheme**

Attendance and participation at all course sessions and completion of all assignments are required to receive credit for the course. Two practical examinations will carry out during the course beside the daily quiz and home works.

Practical examination: 30%

Quiz: 5%

### **15. Student learning outcome:**

After completing this course, students will be able to:

- ❖ Understanding what is the microbiology.
- ❖ Recognized and be able to describe features of different types of pathogenic and normal flora of microorganisms
- ❖ Use microscopy tools for studying microorganisms and identify them.
- ❖ Critically read literature in the field of practical microbiology.

❖ **16. Course Reading List and References:**

1. Stephen H. Gillespie (2006) Principles and Practice of Clinical Bacteriology Second Edition.
2. Atlas, Ronald M., Lawrence C. Parks and Alfred E. Brown (1995) Laboratory Manual of Experimental Microbiology.
3. Johnson, T.R. and C.L. Case (2007) Laboratory Experiments in Microbiology.
4. Forbers, A. Betty, Daniel F. Sahm and Alice S. Weissfeld (2007)
5. Baily and Scotts Diagnostic Microbiology 12th ed. Mosby Elsevier.
6. Nester, E.W.,Anderson,D.G., etal(2001) Microbiology a human perspective,3rd ed.the McGraw-Hill componies,inc;Chicago,USA.
7. Harley,J.P.,Prescott,L.M(1996).Laboratory Exercises in Microbiology ;TheMacGraw-Hill companies,USA.
8. Jawetz, M.; Adelberg, E. A.; Brroks, G. F.; Butel, J. S.; Melinck,J.and Ornston,L.N.Medical Microbiology, Appleton & Lane.(2010).

**17. Topics**

**18. Practical Topics**

Lab 9: Bacterial Staining (simple staining and negative staining)

Lab 10: Differential Staining (Gram Staining)

Lab 11: Capsule Staining

Lab 12: Spore Staining

<p>Lab 13: Flagella Staining</p> <p>Lab 14: Acid-Fast Staining</p> <p>Lab 15: Fungi Staining</p> <p>Lab 16: Isolation of Anaerobic Bacteria</p> <p>Lab 17: Pure Culture</p> <p>Lab 18: Bacterial enumeration * Direct microscopic count</p> <p>Lab 19: Standard Plate Count (SPC)</p> <p>Lab 20: Most Probable Number (MPN)</p> <p>Lab 21: Membrane Filter Technique</p> <p>Lab 22: Measuring Turbidity</p> <p>Lab 23: The effect of physical factors on Microorganisms Temperature *</p> <p><b>Examination</b></p>	
<p><b>19. Examinations:</b></p> <p><b>1. Identifying slide:</b> must be identify the slide perfectly and identifying pointed part if they needed.</p> <p><b>2. Compositional:</b> In this type of exam the questions usually start with Explain how, what are the reasons for...? Why...? How....? With their typical answers Examples should be provided</p> <p><b>3. True or false type of exams:</b></p> <p>In this type of exam, a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence. Examples</p>	

should be provided

**4. Multiple choices:**

In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase.

**5. Draw and label:** in this type question need to draw picture scientifically and labelling all parts of the slide.

**20. Extra notes**

**I would like to be helpful person in my department and support any one wants to understand biology in general and microbiology in specific line.**

**21. Peer review**