AMERICAN UNIVERSITY OF RAS AL KHAIMAH

BIOL 230: General Microbiology

Course Description

Course Title	**General Microbiology**
Instructor	Dr. Maxime Merheb Room No. 14, Block C Phone extension: 1110 Email: maxime.merheb@aurak.ac.ae
Credit Hours	3
Catalog Description	(3:3:0) Structure of eubacteria, eukaryotic cells, archaea, classification of microorganisms, microbial metabolism, microbial growth, microbial genetics, DNA, bacteria and fungi, viruses, specific defenses and diseases.
Prerequisites	BIOL 114

Textbook and other learning resources

- *Microbiology: An Introduction*, 11th edition Tortora, G., Funke, B., and Case, C., 2012. Benjamin Cummings, ISBN-13:9780321767387.
- Website offering brief audio reviews of key topics for on-the-go studying: *www.microbiologyplace.com*
- Course materials will be available through AURAK Blackboard, including the syllabus, PowerPoint slides of lectures, assignments, model answers to quizzes etc.

Course Goals

- To teach students basic principles of microbiology
- To instill in each student an appreciation of the microbial world
- To apply key facts to recent discoveries in microbiology and provide presentations of microbiology in the current news to enhance student awareness and understanding of the importance of microbiology in daily lives

Student Learning Outcomes

At the end of this course the student will be able to:

- **CSLO 1**: Define and explain basic principles of microbiology
- **CSLO 2**: Demonstrate an understanding and appreciation of the microbial world
- **CSLO 3**: Identify real-world problems and show how they apply to microbiology principles

Teaching and Learning Methodologies

Lectures using audiovisuals are mainly applied for instruction. Oral presentations and group discussions are also adopted to encourage team interaction and self-learning. Students are encouraged to make good use of the textbook and online resources that provide additional materials such as animations, suggested readings etc. Assignments, essays and presentations are intended to reinforce learning and involve self-study. Rubrics will be provided to students for essays and presentations. Homework assignments will comprise mainly of problem-solving questions requiring application of

principles and concepts learned in the classroom. Quizzes and examinations will assess student knowledge, understanding and application of the concepts.

Evaluation Plan

- Homework Assignments 10%
- Essays and presentations 20%
- Quizzes 20 %
- Midterm Exam 20%
- Final Exam 30%

Assessment Tool (number)	CSLO achieved	Weightage
Homework Assignments (5)	CSLO 1, CSLO 2, CSLO 3	10%
Essays-Presentations (2) (Each essay: 1200- 1500 words; Presentation: 10 minutes)	CSLO 1, CSLO 2, CSLO 3	20% (each essay is worth 7% and each presentation is worth 3%)
Quizzes (4) [closed book, consisting of multiple choice (30%) and short answer questions (70%)]	CSLO 1, CSLO 2, CSLO 3	20%
Midterm Examination (closed book, consisting of multiple choice and short answer questions in equal weightage, 11/2 hours)	CSLO 1, CSLO 2, CSLO 3	20%
Final Examination (closed book consisting of multiple choice, and short answer questions in equal weightage, 3 hours)	CSLO 1, CSLO 2, CSLO 3	30%

Knowledge, understanding and application of the course based on the material taught in class will be examined by "closed-book" quizzes and midterm and final examinations. Self-study and directed learning will be assessed by assignments, essays and presentations. Written feedback will be provided to students on assignments, quizzes, essays and presentations and examinations to highlight deficiencies in student responses and aspects that need particular attention by way of improvement.

Topic Breakdown

Week	Topics
1	Introduction to Microbial World, History, Benefits and Harms, Cholera example Classification of microorganisms and Biodiversity
2	Prokaryotic and eukaryotic cell structure Archaea

3	Prokaryotic and eukaryotic cell structure Archaea
4	Microbial Metabolism Microbial Nutrition and Growth
5	Control of Microbial growth and antibiotics Microbial genetics
6	Control of gene expression in microbes
7	Bacteria Fungi and Algae
8	Protozoa and Parasites Viruses and prions./ Midterm Examination
9	Viruses II (Hepatitis, influenza) Principles of Disease & and Epidemiology.
10	Microbial Pathogenesis Non specific immune defenses
11	Specific immune defenses. Immune diseases
12	Vaccine and vaccine technology – the basics
13	Human diseases of skin, eye and nervous system
14	Human diseases of Cardiovascular, respiratory, digestive and reproductive systems.
15	Human diseases of Cardiovascular, respiratory, digestive and reproductive systems.
	Final Examination will be scheduled during Final Examination period