

King Fahd University of Petroleum & Minerals
College of Chemicals and Materials, Bioengineering Department
LS 511: Microbiology (3-0-3)
Syllabus - Term 25A

Catalog Course Description: Principles of microbial growth and control, microbial genetic, industrial and biocatalyst, microbial evolution aspects, metabolic diversity and various concepts of immunology, and human diseases caused by microorganisms with some emphasis on marine microbiology.

Course Prerequisite: Graduate standing

Co-requisite: N/A

Textbook: Brock Biology of Microorganisms. Author(s): Madigan, Martinko, Bender, Buckly and David Stahl, Publisher: Pearson, Year: 2015, Edition: 14th + 16th Edition

Instructor: Prof. Amjad Khalil /B7-R126-3 / Phone: 7152 / amjadb@kfupm.edu.sa

Office Hours: UTR 10:00 A.M.-11:00 A.M and by appointment

Course Learning Outcomes:

- 1- Describe the structure/ function of bacterial cells, microbial metabolism and growth.
- 2- Explain microbial genetics and evolution aspects.
- 3- Describe metabolic diversity, environmental and aquatic microbiology.
- 4- Explain the industrial and biotechnological applications of microorganisms.
- 5- Analyze and critical thinking of major concept of microbiology

Course Topics

WEEK	Chapter	Topics
1	1	Microorganism and Microbiology
2	2	Microbial cell structure and function
3	3	Microbial Metabolism
4	5	Microbial growth and control
First Major		
5	6	Microbial genomics
6	10	Genetics of bacteria and archaea
7 and 8	13	Metabolic Diversity of microorganisms
9 and 10	18	Methods in microbial ecology
Second Major		
11	19	Microbial Ecosystems
12		Biodegradation and Microbial detoxification
13		Poly Aromatic Hydrocarbon biodegradation
14		Biofuels for a sustainable future
15		Student Seminar- Term paper presentation

The Grading Policy:

First major	25%
Second major	25%
Assignment	10%
Final	40%
Total	100%

Important Notes:

- The students are encouraged to use any AI tool provided they highlight the parts written by such a tool and can answer any questions about it. A proper citation for the exact name and version of the tool should be given.
- Each student must be vigilant about academic integrity at all times.
- Excuses obtained from the Students Affairs Dept. are accepted. Personal excuses are not accepted.
- If a student reaches the tenth unexcused absence, it will result in a DN grade.
- For every unexcused absence, 0.5 points will be deducted from the attendance marks.
- Excuses for officially authorized absences must be presented no later than one week following the resumption of class attendance.
- No makeup will be accommodated for missed quizzes or exams.
- Late assignments will not be accepted.
- A student caught cheating in any of the assignments will get 0 out of 7% in assignments and other proper action will be taken that may eventually lead to the transfer of the student to student affairs.
- The instructor reserves the right to modify the course outline and policies mentioned in this syllabus at any time during the semester.