



Jordan University of Science and Technology
Faculty of Agriculture
Natural Resources & Environment Department

NR421 Environmental Micro Biology Lab

First Semester 2022-2023

Course Catalog

0 Credit Hours. Practical, hands on experience, examination of soil and water microorganisms. Several aspects of growth, physiology, and environmental influences are experimented on in this course.

Text Book

Title	Methods of Soil Analysis. Part 2. Microbiological and Biochemical Properties
Author(s)	Weaver, R. W. (ed.)
Edition	1st Edition
Short Name	1
Other Information	

Instructor

Name	Dr. Ragheb Tahhan
Office Location	C1L2
Office Hours	Sun : 08:00 - 09:00 Mon : 09:00 - 10:00 Mon : 11:30 - 12:30 Tue : 08:00 - 09:00 Wed : 09:00 - 10:00 Wed : 11:30 - 12:30
Email	tahhan@just.edu.jo

Class Schedule & Room

Section 1:

Lecture Time: Mon : 14:30 - 17:30

Room: LAB

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Meet the Environmental Microbiology Lab. An inside look. Safety considerations.	From 1
Week 2	Soil Sampling for microbiological analysis	From 1
Week 3	Soil Preparation and moisture determination	From 1
Week 4	Examination of living soil microorganisms. Gram staining of mixed soil microbial populations.	From 1
Week 5	Enumeration of soil bacteria	From 1
Week 6	Isolation, purification, and characterization of soil bacteria	From 1
Week 7	Enumeration of soil fungi	From 1
Week 8	Isolation, purification, and characterization of soil fungi	From 1
Week 9	Enumeration, isolation, purification, and characterization of soil actinomycetes.	From 1
Week 10	Organic matter decomposition. Soil Respiration.	From 1
Week 11	Sampling the environmental microorganisms.	From 1
Week 12	Isolation, purification, and characterization of environmental bacteria.	From 1
Week 13	Detection and Isolation of hydrocarbon degraders from soil.	From 1
Week 14	Detection and Isolation of indicator microorganisms from soil and water.	From 1
Week 15	Detection and characterization of microorganisms (THBC) from water.	From 1
Week 16	Effect of temperature and moisture on soil microorganisms.	From 1

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Applying basic microbiological techniques to environmental microbiology [10PLO1, 10PLO4, 5PLO5]	25%	
Gaining a hand on experience in handling, propagating, and studying microorganisms from soil and water [5PLO1, 5PLO3, 5PLO4, 15PLO5]	30%	
Evaluating the role of environmental microorganisms in soil health and nutrients cycling [5PLO1, 5PLO2, 5PLO3, 5PLO4, 5PLO5, 5PLO6, 5PLO7, 5PLO8, 5PLO9]	45%	

Relationship to Program Student Outcomes (Out of 100%)								
PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
20	5	10	20	25	5	5	5	5

Evaluation	
Assessment Tool	Weight
Laboratory Reports	25%
Midterm Exam	25%
Final Exam	50%

Policy	
Absence	University rules applies. Essentially, attendance is compulsory. Allowed absence do not exceed 20% of the lab sessions.
Grading	Midterm Exam 5 points Lab Reports 5 points Final Exam 10 points Total 20 points

Date Printed: 2023-04-17