

2021-2022

**221.4302 – Environmental Microbiology**  
**Semester A**

**Time:** Thursday, 12:00-14:00, Room 223

**Instructor:** Dr. Sarit Avrani, **Email:** sarit.avrani@gmail.com

**Office Hours:** By appointment, Room 80, 04-8240617

**Course Level:** BSc+MSc

**Course Type & Format:** Elective, Lecture

**Number of Hours/Credits:** 2

**Prerequisites:** Microbiology course

**Course Overview (Short Abstract):**

In this course we will discuss various mechanisms and processes that are related to the interactions of microorganisms with the environment. Including: interactions with different environments, interactions with higher organisms, roles of microorganisms in the biosphere, epidemiology in ecological perspective, microorganisms and current environmental problems, environmental microbial diversity, molecular methods in environmental microbiology, quorum sensing.

**Learning Outcomes (What are the skills, abilities, or major concepts a student is expected to acquire in this course?) – At the end of the course students will be able to:**

1. Know the methods used to study microorganisms in their natural environment.
2. Understand the biology behind these methods
3. Get familiar with extreme environments and ways microorganisms adapt to them.
4. Know what enables microorganisms to interact with higher organisms and various environments.
5. Present a paper.

**Assessment (Assessment Method and Grade Composition):**

Attendance – 80% obligatory (not graded)  
Class presentations – 50 %  
Exam – 50%

**Week-by-Week Content and Assignments:**

Week #	Topic	Assignment
1	Introduction	
2	Phylogeny and evolution	
3	Microbial genomics	
4	Environmental molecular microbiology	
5	Is Isolation still relevant ?	
6	Biogeochemical cycles and food webs	
7	Ecology of extreme environments	
8	Biofilms and microbial mats	
9	Microbial multicellularity and differentiation	
10	Virus-host interactions	
11	Plant-microorganism interactions	
12	Animal-microorganism interactions	
13	Presentations	
14	Presentations	