

Exams are closed book/note. Exams will be a combination of multiple choice, short answer, and calculated questions. Open answer questions/designs may be included depending on the material covered. The exams will be 120 minutes each and held during regular class times. Please arrive early for exams as no extra time will be given if you are late.

Homework Problems are due exactly one week after their assignment. No late submission will be accepted without the written permission of Dean of Students. Homework must be submitted online via Moodle, which is subject to the plagiarism check by Turnitin.com.

Term Paper & Presentation should review an assigned microbial species and its environmental application or implication. Peer-reviewed papers will be provided for the students to better prepare the paper and oral presentation. The minimum length of the paper is 4 pages (font 12, 1.15X spaced) excluding figures and references. Presentation will be engaged by a team of 2 to 3 students to outline the importance, principles, mechanisms, design, application, and limitation, if appropriate for the selected topic. Students are highly recommended to search for resources beyond the textbook and provided materials to enhance the integrity and depth of the topic. Students are encouraged to consult with the instructor. Please plan your talk for about 15 minutes, leaving 5 minutes for questions and discussions.

Quiz will be given at the end of each lecture, serving to evaluate both participation and understanding of the learned material. Thus, half of the credit will be given if you are present in the class. The other half will be judged based on the correctness of your answers. The lowest score will be dropped and won't be counted toward your final grade.

<u>Grading Scale:</u>	A	≥ 85
	B+	[80, 85)
	B	[70, 80)
	C+	[65, 70)
	C	[55, 65)
	D	[50, 55)
	F	< 50

Ethics: All students are expected to act in an honest and ethical manner consistent with NJIT's University Code on Academic Integrity, which can be found at <http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>. The consequences for acts of academic dishonesty will range from punitive grade reduction to course failure. Specifically, students should understand the definition of plagiarism. The information on plagiarism at the link is required reading: <https://honorcouncil.georgetown.edu/whatisplagiarism>. *In the event that personal or family issues may impact your performance, Dean of Students will be involved to address said issue.*

Accessibility: Student with documented disabilities should contact the Instructor immediately in a private manner. Appropriate accommodations will be made accordantly after consultation with the Disability Resources and Services at NJIT. Additional information can be found at: <http://www.njit.edu/counseling/services/disabilities.php>.

EVSC 385: ENVIRONMENTAL MICROBIOLOGY
Tentative Syllabus Fall, 2016

<u>WEEK</u>	<u>DATE</u>	<u>TOPIC</u>	<u>HOME- WORK</u>	<u>READING</u>
1	W, 9/6	<u>Microorganisms and Environmental Microbiology (I)</u> Introduction to environmental microbiology, importance of microorganisms, classification of microorganisms, bacteria.		Ch. 1, 2.1, 2.2.1-2.2.6
2	W, 9/13	<u>Microorganisms and Environmental Microbiology (II)</u> Archaea, fungi, protozoa, virus and other biological entities.		Ch. 2.2.9, 2.3, 2.4, 2.5
3	W, 9/20	<u>Microbial Growth</u> Bacterial growth in batch and continuous culture, Monod kinetics, microbial growth in environment.		Ch. 3.1-3.3
4	W, 9/27	<u>Microbial Metabolism</u> Carbon and energy source, metabolic diversity, photosynthesis, respiration, fermentation, primary and secondary production.	HW1 out	Ch. 2.2.8, 3.4, 6.3
5	W, 10/4	<u>Conventional Cultural and Physiological Methods</u> Extraction and isolation techniques, plating and other cultural methods, measuring microbial activities in pure culture, carbon respiration, isotopic and radiolabeled tracers.	HW1 due	Ch. 10, 11
6	W, 10/11	<u>Microbial Genetics</u> Genomics (chromosome and plasmid), genetic information transfer, antibiotic resistance.		Ch. 2.2.7, 13.1, 13.6, 21. 2, 31.4
7	W, 10/18	MIDTERM EXAM		
8	W, 10/25	<u>Advanced Molecular Tools</u> DNA extraction method, hybridization-based and amplification-based assays, DNA fingerprinting, sequencing analysis, bioinformation and 'omic approaches for characterization of environmental microorganisms.		Ch. 13, 21

9	W, 11/1	<u>Microbial Environments (I): Soil</u> Earth environments, soil zones and phases, biotic and abiotic stresses, major microbial groups.	Term paper assigned	Ch. 4.1-4.4
10	W, 11/8	<u>Microbial Environments (II): Water</u> Physical and chemical characteristics, planktonic and benthic microbes, biofilm and microbial mats, freshwater environments.		Ch. 6.1, 6.2, 6.5
11	W, 11/15	<u>Microbial Environments (III): Air</u> Aeromicrobiology, aerosols and bioaerosols, aeromicrobiological pathways, microbial survival in the air.	HW2 out	Ch. 5.1-5.5
12	W, 11/22	NO CLASS (Friday Classes Meet)	HW2 due	
13	W, 11/29	<u>Biogeochemical Cycling</u> C/N/S cycling, microbial induced corrosion.		Ch. 16.1-16.4
14	W, 12/6	STUDENT PRESENTATION		
15	W, 12/13	FINAL EXAM		

PLEASE NOTE: THIS SYLLABUS, INCLUDING THE SCHEDULE, IS SUBJECT TO CHANGE BASED ON MATERIAL COVERED AND OTHER FACTORS. ANY CHANGES ARE AT THE DISCRETION OF THE INSTRUCTOR AND/OR DEPARTMENT, AND WILL BE COMMUNICATED AS SOON AS POSSIBLE TO ALL STUDENTS.