

CE 421 Environmental Biotechnology - Fall 2007

Week	Date	Topic	Reading Assignment
Fundamentals of Microbiology			
1	Aug 21, 23	Introduction/The Microbial World	Maier Ch. 1-2
2	Aug 28, 30	Microbial Metabolism and Growth	Maier Ch. 3
3	Sep 4, 6	Role of Microorganisms in Biogeochemical Environment	Bitton Ch. 3
4	Sep 11, 13	Environmental Effects of Biogeochemical Cycles	supplement
5	Sep 18, 20	Biodegradation	supplement
Public Health Microbiology			
6	Sep 25, 27	Pathogens and Parasites in Water and Wastewater/First Exam	supplement
7	Oct 2, 4	Indicator Microorganisms and Disinfection	supplement
Water and Wastewater Treatment Microbiology			
8	Oct 9, 11	Water Treatment	supplement
9	Oct 16, 18	Wastewater Treatment	supplement
10	Oct 23, 25	Wastewater Treatment: Stoichiometry and Kinetics	Grady Ch. 2 & 3
11	Oct 30, Nov 1	Treatment Plant Modeling/Biological Nutrient Removal/Second Exam	Grady Ch. 4 & 8
12	Nov 6, 8	Biological Nutrient Removal/Anaerobic Processes	supplement
13	Nov 13, 15	Anaerobic Processes	supplement
	Nov 20, 22	Thanksgiving Break	
14	Nov 27, 29	Student Reports	
15	Dec 4, 6	Student Reports	
	TBA	Final Exam	

Supplementary Texts: Environmental Biology for Scientists and Engineers, Vaccari, Strom, and Alleman, Wiley and Sons, 2006; Environmental Microbiology, by Maier, Pepper, and Gerba, Academic Press, 2000.

Wastewater Microbiology 2nd edition, by Gabriel Bitton, John Wiley & Sons, 1999.

Biological Wastewater Treatment, 2nd edition, by Grady, Daigger, and Lim, Marcel Dekker, 1999

Grading:	2 exams @ 20% each	40%
	Final exam	25%
	Class Participation	15%
	Term Paper	20%

Assignments:

- Conduct a literature review and prepare a term paper (10 to 15 pages) on a selected topic (not related to your thesis) involving an environmental biotechnology application. The term paper topic will be due August 30, outline due Sept. 13, list of references due Oct 4, first draft due Nov. 8 and final paper will be due Nov. 27. These are strict deadlines. Missed dates will cause a decrease in the term paper grade.
- In groups of 3 or 4, lead a discussion of a current environmental research article. Each group will be responsible for leading at least one discussion. It is expected that everyone in the class will have critically read the article prior to the discussion. Literature discussions will be held on Thursdays.

Lecture Instructor: Tim Ellis, tge@iastate.edu 375 Town, 4-8922, <http://www.public.iastate.edu/~tge/courses/ce521/>
Please address any special needs or special accommodations with me at the beginning of the semester or as soon as you become aware of your needs. Those seeking accommodations based on disabilities should obtain a Student Academic Accommodation Request (SAAR) form from the Disability Resources (DR) office (515-294-6624). DR is located on the main floor of the Student Services Building, Room 1076.