CVLE 481 – Special Topics: Advanced Sanitary Engineering (Biological Treatment)

Spring 2009

Lecture: Wednesday 7:00 pm – 9:20 pm, WEL 113 & Wimba (MU-Online)

Instructor: Dr. Isaac W. Wait
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Office Hours: Monday, Thursday, Friday 1:00 pm – 3:00 pm; other times available by appointment.

Course Description:
Principles and practices of the process design of biological systems employed in wastewater treatment, including such topics as microbial metabolism, oxygen transfer, and biomass-separation. Lectures, laboratory, and field trips. (PR: ES 651)

Required Text: Wastewater Engineering: Treatment and Reuse, 4th edition, Metcalf & Eddy, McGraw-Hill, ISBN: 0-07-041878-0

Computer Requirements: This course will be streamed over the internet using the MU-Online Wimba "Live Classroom" method. Students may use their own personal computers, Marshall University lab computers, and are also free to attend class in-person.

Objective: To provide the environmental engineering student with an in-depth education in the wastewater treatment area, with particular attention being paid to biological methods of wastewater treatment.

Outcomes: With the successful completion of the course, the student should be able to:

a) Analyze and design sedimentation processes, such as grit chambers, primary clarifiers, and secondary clarifiers.
b) Analyze and design suspended growth biological treatment systems, such as activated sludge basins, aerated lagoons, and oxidation ditches.
c) Analyze and design attached growth biological treatment systems, such as trickling filters and rotating biological contactors.
d) Analyze and design waste stabilization ponds.
e) Analyze and design sludge treatment facilities, such as thickeners, digesters, and dewatering processes.

Course Requirements and Grading:
Periodic homework assignments will be announced in class, and three written research papers will be required. Late work is only accepted with prior approval.

Grading Basis:	Mid-term exams:	40%	A:	90-100%
	Homework:	20%	B:	80-90%
	Research Papers:	15%	C:	70-80%
	Final Exam:	25%	D:	60-70%
			F:	0-60%

Exam Schedule:
Midterm exam #1: Wednesday, February 18th
Midterm exam #2: Wednesday, April 1st
Final exam: Wednesday, May 6th

Note: With the exception of the final exam, a brief lecture will be given before each of the midterm exams.

Research Paper Schedule:
Paper #1, due Friday, February 11th
Paper #2, due Friday, March 11th
Note: Students in CVLE 481 are exempt from completing the Paper #3 that is assigned to students in ENVE 616.

Attendance Policy:
It is preferred for students to view and participate in class lectures live. However, if attendance is not possible, students may occasionally view the archived lectures on MU-Online.

Academic Dishonesty Policy:
Please review the Marshall University academic dishonesty policy: http://www.marshall.edu/academic-affairs/Academic%20Dishonesty%20Policy.pdf

Policy for Students with Disabilities:
Academic accommodation will be provided to disabled students following receipt of official guidance from the Marshall University Office of Disables Student Services (DSS). Disabled students should contact DSS at Prichard Hall 11 (304-696-2271) to arrange accommodation.

Affirmative Action Policy:
This course will follow Marshall University's policy on Affirmative Action, which can be found on page 93 of the 2008-2009 undergraduate catalog.

Inclement Weather Policy:
Students can find information concerning Marshall's policy regarding inclement weather on pages 95-96 of the 2008-2009 undergraduate catalog.

Date Prepared: 22 January 2009 (Rev.1)