

LAMAR UNIVERSITY
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

CVEN 3311:10 INTRODUCTION TO ENVIRONMENTAL ENGINEERING
FALL SEMESTER 2017

Instructor:

Liv Haselbach Cherry 2616, 409 880 8759. lhaselbach@lamar.edu

Course Description:

In Introduction to Environmental Engineering the laws of conservation of mass and energy and simple models are used to derive formulae and solve basic problems as they relate to the impact of pollutants on the environment, air and water quality.

Prerequisites:

1. CHEM 1311. Minimum C.
2. MATH 2413. Minimum C.

Student Learning Outcomes: The course prepares students:

- to introduce environmental engineering terminology
- to be able to apply basic chemistry related to environmental problems
- to provide an overview of common forms of water and air pollution and their impacts
- to introduce the fundamental principles governing the fate and transport of pollutants
- to predict pollutant concentrations using mass balances and appropriate equations/models
- to provide a foundation for the continuation to more theoretical and applied aspects of water and air pollution chemistry, measurements, and modeling.

ABET Student Outcomes: At the conclusion of the course the student will be able to have:

- a: an ability to apply knowledge of mathematics, science, and engineering
- h: the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- j: a knowledge of contemporary issues

Textbook:

Masters & Ela, *Environmental Engineering and Science* 3rd Edition

Meeting Times:

Lecture: Tuesdays and Thursdays 12:45pm to 2:05pm

Office Hours:

Tuesday 2:15pm-3:30pm, Thursday 11:30am-12:30pm

Grade Distribution:

Five Quizzes (16% each):	80%
Ten homework assignments (2% each):	20%
	100%

Grading Scale:

Grades will be assigned on a straight scale, with some adjustment for the level of difficulty and overall class performance. If no adjustments are necessary, grades will be assigned as shown below:

A: ≥ 90 , B: 80-89, C: 70-79, D: 60-69, F: < 60

Units of Study and Student Learning Outcomes:

Student Outcomes	Course Topic	Weeks
Perform simple stoichiometric and unit conversions	Review of chemistry, units, Ideal Gas Law	1-2
Perform mass balances on water flows and pollutants	Box models/mass balances/ growth	2-3
Define 1 st law of thermo and apply energy balances	simple energy transfer	3
Perform simple Envr. Chem., Characterize natural systems: biochemical	Bacterial growth kinetics, BOD, stream oxygen,	4-5
Characterize natural systems: physicochemical	Lakes, ecosystems, nutrient cycles	6-7
Apply water standards Identify hazardous waste issues	Drinking water, wastewater treatment intro.	8-9
Identify common air pollutants and their impacts	Criteria & indoor air pollutants	9-10
Perform mass balances to calculate air pollutant concentrations	Box models (Indoor and outdoor)	11-12
Estimate downwind concentrations	Gaussian Plume Model	11-12
Analyze environmental data	Climate change variability and emissions	13-14
Define global air impacts	GHGs, Ozone, etc.	13-14

Course Policies:

1. Class Meeting: Please attend all lectures. You will be responsible for understanding materials covered in the textbook, class handouts, lectures, in-class problems and homework assignments.
2. Homework: No late homework will be accepted without an official excuse. All homework must be handed in on green engineering paper. The pages should be numbered and stapled together. Use only one side of the paper. Present solutions showing all steps, equations, and units. Draw a box around your answer. You are expected to complete homework assignments on your own. Discussing general aspects of a homework problem with classmates is acceptable. Copying homework problems from classmates or solutions manuals is not acceptable and a violation
3. Quizzes: There will be five quizzes of 50 minutes each. They will be a combination of short answer on any aspect of the course and numerical problems similar to the homework
4. Grade Disputes: All grades are considered final and unamendable on the date in which the final grades are posted on the Lamar University system. A student can file an appeal within 10 working days of this date if the instructor has failed to implement a previously announced grade policy, awarded a grade in what has been determined to be an arbitrary or capricious manner, or violated a University or Texas State University System rule or policy. The student should first meet with the instructor to resolve the issue prior to beginning the appeal process. Please reference the student handbook for further instruction.
5. Academic Honesty Policy: Students are specifically warned against all forms of cheating and plagiarism. The Lamar University Student Handbook states: Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. Punishable offenses include, but are not limited to, cheating on an examination or academic work which is to be submitted, plagiarism, collusion, and the abuse of resource materials. One aspect of the Handbook's definition of cheating is, "purchasing, or otherwise acquiring and submitting as one's own any research paper or other assignment." Students seeking guidance to avoid plagiarism should consult the course

- instructor, recent handbooks, or the University Writing Center. Punishments for academic dishonesty range from F in the course, to an F on the assignment, to re-submission of the work. Punishments are at the discretion of the faculty member, and may be appealed to the department chair, dean, and Associate Vice President for Academic Affairs. Flagrant or repeat violations may warrant further discipline by the university including probation and suspension.
6. *Students with Disability policy*: Lamar University is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is located in the Communications building room 105. Office staff collaborate with students who have disabilities to provide and/or arrange reasonable accommodations. If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact the DRC at 409-880-8347 or drc@lamar.edu to arrange a confidential appointment with the Director of the DRC to explore possible options regarding equitable access and reasonable accommodations. If you are registered with DRC and have a current letter requesting reasonable accommodations, we encourage you to contact your instructor early in the semester to review how the accommodations will be applied in the course.
 7. *Sexual harassment*: University policy prohibits sexual harassment as defined in Student Handbook: Responsibilities of the Students. Complaints about sexual harassment should be reported to Human Resources, 880-8375.
 8. *Academic Continuity/ Campus Closure*: In the event of an announced campus closure in excess of four days due to a hurricane or other disaster, students are expected to login to Lamar University's website's homepage (www.Lamar.edu) for instructions about continuing courses remotely.

Emergency Procedures:

Many types of emergencies can occur on campus; instructions for severe weather or violence/active shooter, fire, or chemical release can be found at:

<http://www.lamar.edu/about-lu/administration/risk-management/index.html>. Following are procedures for the first two:

Severe Weather:

1. Follow the directions of the instructor or emergency personnel.
2. Seek shelter in an interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside.
3. If you are in a multi-story building, and you cannot get to the lowest floor, pick a hallway in the center of the building.
4. Stay in the center of the room, away from exterior walls, windows, and doors.

Violence/Active Shooter (CADD):

1. **CALL-** 8-3-1-1 from a campus phone (880-8311 from a cell phone). Note: Calling 9-1-1 from either a campus phone or cell phone will contact Beaumont City Police Dispatch rather than University Police.
2. **AVOID-** If possible, self-evacuate to a safe area outside the building. Follow directions of police officers.
3. **DENY-** Barricade the door with desks, chairs, bookcases or any other items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it is safe.
4. **DEFEND-** Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.