SYLLABUS

CHEE 270 – Introduction to Environmental Engineering- 4 units

Time: T-Th 12:30 -1:45, Location: Shantz 247
Discussion: F 11- 11:50, Location: Chavez 308
Final Exam Date: 12/15/2021
Final Exam Time: 1-3 pm

Instructor and Contact Information

Dr. Vicky Karanikola

Office location: CE 306 F

Office phone: (520) 621-5881

E-mail address: vkaranik@email.arizona.edu

Course Website on D2L: D2L will be used for posting the lecture schedule, hand-outs and assignments; http://www.d2l.arizona.edu

Office Hours: Thursday 2 -3 pm by appointment (zoom ID: 5206215881)

Teaching Assistant: Yon Locher

TA email: yonlocher@email.arizona.edu

TA office hours: Monday 2-3 pm @ https://arizona.zoom.us/j/3402202164

Course Objectives and Expected Learning Outcomes

During the course, the students will:

• Familiarize students with the possible careers in the environmental engineering field

• Learn concepts and solving mass and energy balances for environmental engineering applications

• Learn basic concepts of water chemistry and apply them to the quantification of water quality

• Learn basic concepts of environmental health and risk assessment

• Learn basic concepts of air pollution at local and global scales and acquire knowledge to quantify air quality including climate change

• Learn basic concepts of solid and hazardous waste

Learning outcomes:

• Students will understand career opportunities for Environmental Engineers

• Students will acquire and apply new knowledge on the impacts of engineered systems on the environment and the applications of engineering technology to protecting environmental quality

• Students will acquire the ability to apply scientific principles to the formulation of problems in environmental systems

• Students will acquire the ability to synthesize and develop solutions to complex environmental problems in the areas of air and water pollution

Absence and Class Participation Policy

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, http://policy.arizona.edu/human-resources/religious-accommodation-policy.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: https://deanofstudents.arizona.edu/absences

Classroom attendance:

- If you feel sick, or may have been in contact with someone who is infectious, stay home. Except for seeking medical care, avoid contact with others and do not travel.
- Notify your instructor(s) if you will be missing a course meeting or an assignment deadline.
- Non-attendance for any reason does not guarantee an automatic extension of due date or rescheduling of examinations/assessments.
- Please communicate and coordinate any request directly with your instructor.
- If you must miss the equivalent of more than one week of class, you should contact the Dean of Students Office DOS-deanofstudents@email.arizona.edu to share documentation about the challenges you are facing.
- Voluntary, free, and convenient COVID-19 testing is available for students on Main Campus.
- If you test positive for COVID-19 and you are participating in on-campus activities, you must report your results to Campus Health. To learn more about the process for reporting a positive test, visit the Case Notification Protocol.
- COVID-19 vaccine is available for all students at Campus Health.
- Visit the UArizona COVID-19 page for regular updates.

Required Texts or Readings

Textbook: Environmental Engineering: Fundamentals, Sustainability, Design, 2nd Edition
James R. Mihelcic, Julie B. Zimmerman

Assignments and Examinations: Schedule/Due Dates

Exams: there will be one mid-term examination on week 8. All exams will be open book/notes.

Quizzes (on D2L) will be posted every week, the content of the quizzes will be based on the previous week's lecture. All of them will be open book/notes.

Assignments will be posted weekly on D2L. Assignments are mandatory for submission and are due Tuesday at the start of the lecture or can be uploaded on D2L before the start of Tuesday's lecture. Assignments will be done in groups of two and should be submitted as a group. Assignment topics are listed below but are subject to change based on the progress of the class.

	Topics

Week 1	Ethics
Week 2	Units/Regulations
Week 3	Population Growth
Week 4	Mass & Energy Balances
Week 5	Mass & Energy Balances
Week 6	Risk Assessment
Week 7	Solid Waste/Hazard Waste
Week 8	Water Resources
Week 9	Water Pollution
Week 10	Wastewater Treatment
Week 11	Water Treatment
Week 12	Air Pollution
Week 13	Air Pollution
Week 14	Global Atmospheric Change

Final Examination or Project

The date and time of the final exam, along with links to the Final Exam Regulations, https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information, and Final Exam Schedule, http://www.registrar.arizona.edu/schedules/finals.htm

Grading Scale and Policies

Attendance will be worth 5% of your grade

- Quizzes 35%
- Assignments 20%
- Mid-term 20%
- Final Exam 20%

Grading scale: A = 90-100%; B = 80-90%; C = 70-80%; D= 60-70%; E < 60%

Scheduled Topics/Activities

The course topics are outlined below. The course is structured for two 75 min and one 50 min weekly meetings (meeting 3 times in total). The once a week 50 min meeting will be reserved for discussions, problem solving, field trips and guest speakers from all possible fields for a career in environmental engineering. The two 75 min meetings will be mostly reserved for lectures, problem solving and in-class exercises.

Week	three times a week- Tuesday/Thursday and Friday	Relevant Materials
1- Aug 24-26 Discussion Aug- 27	Intro to Environmental Engineering Ethics Discussion: Research and Env. Careers	Chapter 1 & D2L
2 – Aug/Sept 31-2 No Discussion	Environmental Units (pre-recorded) Env. Legislation (pre-recorded)	Chapter 2 & D2L
3 –Sept 7-9 Discussion **Sep- 10**	Population Growth Models Discussion: Speaker	Chapter 5 & D2L
4 –Sept 14-16 Discussion Sep- 17	Mass Balances *Discussion: Problem Solving*	Chapter 4

5 - Sept 21-23 Discussion Sep- 24	Mass/Energy Balances *Discussion: Problem Solving*	Chapter 4
6 - Sept 28-30 Discussion Oct- 1	Risk Assessment *Discussion: Problem Solving*	Chapter 6
7 - Oct 5-7 Discussion **Oct- 8**	Solid Waste Hazardous Waste Discussion: Speaker	Chapter 10
8 - Oct 12-14	**Tuesday 12th Mid-term Exam** Water Resources	Chapter 7
9 - Oct 19-21 Discussion Oct- 22	Water Pollution *Discussion: Problem Solving*	Chapter 7
10 - Oct 26-28 Discussion Oct- 29	Wastewater Treatment Discussion: Problem Solving	Chapter 9
11 - Nov 2-4 Discussion Nov- 5	Water Treatment Discussion: Field trip-Barrio Brewing	Chapter 8
12 - Nov 9 Discussion Nov- 12	Air Pollution Outdoor Discussion: *Problem Solving*	Chapter 11
13 - Nov 16-18 Discussion Nov- 19	Air Pollution indoor *Discussion:* Speaker	Chapter 11 &D2L
14 - Nov 23 No discussion	Global Atmospheric Change	D2L
15 – Nov/Dec 30-2 Discussion Dec- 3	Global Atmospheric Change Recap *Discussion: Exam Problem Solving*	D2L
16 –Dec 7 No Discussion	Recap	

Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students.

Accessibility and Accommodations

At the University of Arizona we strive to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, you are welcome to let me know so that we can discuss options. You are also encouraged to contact Disability Resources (520-621-3268) to explore reasonable accommodation. For additional information on the Disability Resource Center and reasonable accommodations, please visit http://drc.arizona.edu.

If our class meets at a campus location: Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Code of Academic Integrity

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity.

The University Libraries have some excellent tips for avoiding plagiarism, available at http://new.library.arizona.edu/research/citing/plagiarism.

Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

UA Nondiscrimination and Anti-harassment Policy

The University is committed to creating and maintaining an environment free of discrimination; see http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

Additional Resources for Students

UA Academic policies and procedures are available at http://catalog.arizona.edu/policies

Student Assistance and Advocacy information is available at http://deanofstudents.arizona.edu/student-assistance/students/student-assistance

Confidentiality of Student Records

http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa

Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.