



ENVE 321 Syllabus

ENVE 321 Introduction to Environmental Engineering

Spring 2018

(4 credits)

COVL Room 216

Monday and Wednesday, 4:00-5:50 pm

Instructor: Dr. Tyler Radniecki

Phone: (541) 737-7265

Office: Johnson Hall Room 316A/316J

E-mail: tyler.radniecki@oregonstate.edu

Office Hours: Tuesday 4:00-5:00 pm, Thursday 2:00-3:00 pm or by appointment.

TA: Alyssa Saito

Office: Covel Room 140

E-mail: saitoal@oregonstate.edu

Office Hours: Mondays 12-1pm and Wednesdays 12 -1pm

Contact Policy: The preferred method of contacting your instructor is by visiting during the stated office hours or e-mail. If neither option is available, a phone call is acceptable.

When e-mailing, be sure the following items are included:

- 1) "ENVE 321" should be in the Subject line to avoid my marking it as spam and deleting it.
- 2) Respectfully address the recipient as Dr./Professor/Mr./Ms./Mrs. Last Name.
- 3) Briefly but clearly describe your comment/question/concern (less is more!).
- 4) Sign both your first and last names (especially important if using a non-OSU e-mail address (*e.g.* Gmail)).

When leaving a voice mail, be sure the following items are included:

- 1) Respectfully address the recipient as Dr./Professor/Mr./Ms./Mrs. Last Name.
- 2) Clearly and slowly state your full name and phone number.
- 3) Mention that you are in ENVE 321.
- 4) Briefly but clearly describe your comment/question/concern (less is more!).
- 5) Repeat again your full name and phone number.



ENVE 321 Syllabus

Course Overview and Description: Causes and effects of environmental problems and engineering methods to control them. This course is an overview of the major themes currently running through the field of environmental engineering. Major themes covered include the effect of human population growth and increased urbanization on the environment, energy consumption and production, water supply and treatment, air pollution and global climate change.

Prerequisites: Math 256 or Math 256H

Course Learning Objectives:

Objective 1: Solve problems in mathematics through differential equations, calculus-based physics, and one additional area of science.

(e.g. The current global natural gas consumption is 14.7 gigatons/year and has grown at a rate of 3% over the past 10 years. Assuming that the growth rate remains at 3% over the next 10 years, what is the expected mass of CO₂ that will be released to the atmosphere from the combustion of natural gas over the next 10 years?)

Objective 2: Drawing from a broad education, determine the global, economic, environmental, and societal impacts of a specific, relatively constrained engineering solution.

(e.g. What are 2 global benefits and 2 global consequences of using corn-based ethanol as an alternative fuel source?)

Objective 3: Explain how contemporary issues affect the identification, formulation, and solution of engineering problems.

(e.g. What is “Cap-and-trade” and does it allow for economic growth in areas with poor air quality?)

(e.g. What is the Love Canal incident and why is it significant to the field of environmental engineering?)



ENVE 321 Syllabus

Objective 4: Solve well-defined engineering problems related to environmental engineering.

(e.g. If a drinking water treatment plant has an intake flow of 10 MGD, what size clarifier is needed to remove all sediment down to 10 μm in diameter with an average density of 1.4 g/mL?)

Course Textbook: *Introduction to Environmental Engineering and Science*, 3rd Edition, by G.M. Masters and W.P. Ela, Pearson Prentice Hall, 2008, ISBN 0-13-148193-2 (available at the Beaver Bookstore or Amazon.com)

Course Requirements:

Attendance policy:

Attendance is highly encouraged but not required. However, materials outside of the course textbook will be used and while they will be distributed via Canvas, their **context may be difficult to ascertain** without being in class. Additionally, student notes will be distributed via Canvas but **may be missing key components** (e.g. equations, figures, etc.) that are meant to be filled in by the students during class.

Coursework:

Coursework will consist of weekly homework assignments, 2 mid-terms and 1 final exam. All homework assignments will be **due 1 week from their assignment** and should be handed in during class. **Late homework will not be accepted.** If you are unable to turn in your homework on the date that it is due, please either **turn the homework in early** (at my office) or **contact me in advance** to arrange another time to turn the homework in. Both mid-terms and the final exam will be closed book and closed notes unless otherwise indicated.

Student expectations:

In this course, you are expected to contribute to a positive learning environment by a) being on time to class, b) remaining in class until the session formally ends, c) turning cell phones off or to vibrate, and d) treating one another and the instructor with both courtesy and respect.



ENVE 321 Syllabus

While the University is a place where the free exchange of ideas and concepts allows for debate and disagreement, all classroom behavior and discourse should reflect the values of respect and civility. Behaviors which are disruptive to the learning environment will not be tolerated. As your instructors, we are dedicated to establishing a learning environment that promotes diversity of race, culture, gender, sexual orientation, and physical disability. Anyone noticing discriminatory behavior in this class, or feeling discriminated against should bring it to the attention of the instructors or other University personnel as appropriate.

Grading policy:

Final grades will be based on the results of the homework assignments, mid-terms and final exam as indicated below:

<u>Course Work</u>	<u>Percent of final grade</u>
Homework	20%
Quizzes	20%
Mid-term Exam	30%
Final Exam	30%

Homework:

Homework is instrumental in helping students grasp fundamental concepts and to gain exposure to techniques and skills for applying these principles to real-life situations. Homework should be done in several sittings; you cannot expect to be successful doing homework quickly the night before it is due. Solutions must be written up independently.

Use the following guidelines for homework preparation:

- Use clean, 8.5 x 11 inch paper. Engineering paper is preferred; neatness is important and appreciated.



ENVE 321 Syllabus

- Write on only one side of the paper and start a new problem on a new sheet of paper (or draw a horizontal line completely across the page between the end of the previous problem and the beginning of the new problem).

- Write the following at the top of each page:

Your Name

Course # (ENVE 321)

Due date, Problem Set No.

Page number/Total pages (top right corner)

- Securely staple all pages; do not fold or paper clip together.
- Show all of your work. **Draw a box around your final answer(s).**
- For graphical solutions, use graph paper or computer generated plots. Label the axes of your graph and include units.
- Provide computer program listings, if used, on a separate sheet.

Homework should be turned in before the beginning of the class. Late homework will not be accepted unless prior arrangements have been made.

Exams:

A midterm exam and a final exam, each worth 30% of the total grade, will be conducted on:

Midterm: Wednesday, May 16th; Surface Water Treatment/Groundwater Treatment and Remediation

Final Exam: Thursday, June 14th; 12:00pm; Wastewater Treatment/Air Pollution

If you **MUST** miss an exam for an emergency situation, please let me know in advance of the exam. If you oversleep or skip an exam you will not have an opportunity to make it up. If you have a valid (according to me) time conflict and you let me know in advance, there is the possibility of taking an exam at an alternate time.

Mid-term date is subject to change if the course requires it.

Make-up Exams:

Make-up exams for the **Mid-term** will only be given for students with a **legitimate reason** (*i.e.* school sanctioned or religious event) **and** that contact the instructor **before** the day of the exam (sooner is better!). Non-legitimate reasons include work, doctor appointments,



ENVE 321 Syllabus

sleeping, fishing, etc. It is the responsibility of the student to arrange his/her schedule to accommodate for the exams.

If a student misses a mid-term exam due to serious illness or family emergency, a make-up exam will be given upon **verification** of the illness/emergency (doctor's note, family confirmation, *etc.*).

Make-up a mid-term exam will consist of an alternative exam given at a time and location to be determined by the instructor and student.

Statement on Cheating and Plagiarism: The instructor of this class take the issue of academic honesty very seriously. Any instance in which a student is caught cheating will be handled in strict accordance with the policies outlined at <http://www.orst.edu/admin/stucon/achon.htm>. In order to provide students with a positive learning environment, OSU has adopted a pledge of civility, which can be found at <http://osu.orst.edu/admin/stucon/index.htm>. If evidence of academic dishonesty comes to the instructor's attention, the instructor will document the incident, permit the accused student to provide an explanation, advise the student of possible penalties, and take action. The instructor may impose any academic penalty up to and including an "F" grade in the course after consulting with school head and informing the student of the action taken.

Students with Disabilities: Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Veterans: Veterans and active duty military personnel with special circumstances are welcome and encouraged to communicate these, in advance if possible, to the Instructor.

Syllabus is Subject to Change: This syllabus and schedule are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent.



ENVE 321 Syllabus

Course Schedule*

<u>Week</u>	<u>Dates</u>	<u>Topic</u>
1	Apr. 2 rd and 4 th	Course Introduction/History of Environmental Engineering/ Surface Water Treatment
2	Apr. 9 th and 11 th	Surface Water Treatment
3	Apr. 16 th and 18 th	Surface Water Treatment
4	Apr. 23 th and 25 th	Groundwater Treatment and Remediation
5	Apr. 30 th and May 2 nd	Groundwater Treatment and Remediation
6	May 7 th and 9 th	Wastewater Treatment
7	May 14 th	Wastewater Treatment
	May 16th	Mid-term Exam (Surface Water and Groundwater)
8	May 21 st and 23 rd	Wastewater Treatment
9	May 28th	Memorial Day (No Class)
	May 30 st	Air Pollution
10	June 4 th and 6 th	Air Pollution
11	June 14^h	Final Exam (COVL 216, 12:00 pm – 1:50 pm)

***Course schedule subject to change as the instructor deems necessary to ensure that the student body, as a whole, is given the best chance to learn the material. Additional time may be needed for difficult concepts.**