CE 370: INTRODUCTION TO ENVIRONMENTAL ENGINEERING

Course Syllabus – Spring 2018

Class: **Section 1**: 12:05 – 1:20 Tuesday and Thursday, 135 Reber Building
Section 2: 1:35 – 2:50 Tuesday and Thursday, 360 Willard Building

Please attend your session. The classrooms are not large enough to accommodate extra students.

Instructor: **Prof. Christopher Gorski**
231F Sackett Building
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Office hours: Tuesdays and Thursdays 3:00 – 4:00 in 231F Sackett or by appointment

TA: **Prachi Joshi**
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Office hours: Mondays 2:00 – 3:00, Wednesdays 2:30 – 3:30, in 213 Sackett Building

Required Text: *Introduction to Environmental Engineering and Science.* 3rd edition, 2008, G.M. Masters and W.P. Ela. ISBN: 0-13-148193-2. ***There will be required reading assigned from this book.***

Notes: Skeletal lecture notes will be provided online through Canvas >24 hours before class. These notes will include required reading from the text. ***Students are expected to print their own copies of the notes before class.***

Course Description: This course will provide an introduction to fundamental and current topics in Environmental Engineering. The course goals are to: (*i*) provide students with the "toolsets" to quantitatively evaluate and discuss environmental issues, (*ii*) provide students with the resources necessary to develop a personalized answer to the question: "What role will environmental issues play in my personal and professional lives?" and (*iii*) prepare students to succeed on the Environmental Engineering section of the Fundamentals of Engineering Exam.

Grading:

6 Homework Assignments (25 points each, 1 dropped)	(40%)
6 Quizzes (40 points each, 1 dropped)	(50%)
Participation (several equally weighed events)	(10%)
Total	**(100%)**

The standard grading system will be used to assign final letter grades in this course (A = 94–100%, A– = 90–93%, B+ = 87–89%, B = 84–86%, B– = 80–83%, C+ = 77–79%, C = 70–76%, D = 60–69%, F = 0–59%).

Homework Assignments: Six homework assignments will be given over the course of the semester. Each assignment will be worth 25 points. Assignments are due at the beginning of class. I will post the solutions to the homework shortly after class. *Consequently, late homework will not be accepted for credit*. You

may discuss the homework with peers, but each student must turn in their own assignment that represents individual effort. Grading notes:

- Your name and course section must appear on every page of **stapled** solutions. Homeworks that are not stapled will be returned without grading. The lack of staples makes it incredibly difficult to grade and keep track of homework assignments. Paper clips do not work because turning pages tends to free them.
- Please include the assignment number on the first page to avoid confusion.
- You must show your work, in a step-by-step logical manner, to receive full credit. If you get stuck on a step while solving the problem, you can explain the next steps to how you would solve the remainder of the problem for credit.
- Solutions that are too messy to follow will not be graded.

Due to the way the course is structured, you will not receive your graded Homework Assignments before taking Quizzes that cover the material. The solutions will be posted on Canvas to address this issue, but if you prefer to refer to your own solution while studying, please make a copy of it prior to turning it in.

Your lowest homework score will be dropped. In cases in which you have an excuse for not turning in an assignment, that score will be dropped. In extreme circumstances, additional homework assignments will also be excused, provided a sufficient, written excuse.

Quizzes: This class has no exams. Quizzes given approximately every 2 weeks will be used to assess your understanding of the course material. A Quiz will typically include conceptual questions derived from the assigned reading (often multiple-choice) as well as quantitative questions related to the in-class lectures and problem sets. **You will not be able to achieve the maximum number of points on a Quiz without doing the required reading.** Cell phones are not permitted during quizzes and will be assumed to be cheating devices if seen.

Your lowest Quiz score will be dropped. If you have you have a valid excuse to miss a Quiz, that Quiz will be dropped. **If you have valid excuses to miss additional Quizzes, make-up Quizzes will be given as an oral exam, in which you will answer questions at a white board**. If you have a valid conflict, please contact me as soon as possible.

Participation: You will be participating in in-class problem solving sessions at the end of most class periods. You can work individually or in small groups to solve these problems. Each group (or individual) will hand in their attempt to solve the problems with each member's name clearly written at the top of the page. Simply attempting the solution will result in full participation credit for the day. However, just writing your name on an otherwise blank piece of paper is insufficient. There will also be one or more small assignments over the course of the semester that will contribute to participation points.

Academic Honesty: The University defines academic integrity as the pursuit of scholarly activity in an open, honest, and responsible manner. All students should act with personal integrity, respect other students dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts. Dishonesty of any kind will not be tolerated in this course. Dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating in- formation or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Students who are found to be dishonest will receive academic sanctions and

will be reported to the University's Office of Student Conduct for possible further disciplinary sanctions. If you are not familiar with what constitutes as an academic integrity violation, please read Penn State's policies: http://www.engr.psu.edu/FacultyStaff/AcademicIntegrity.aspx.

Disabilities: Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information regarding ODS, please visit the Office for Disability Services Web site at http://equity.psu.edu/ods/.

To receive consideration for course accommodations, you must contact ODS and provide documentation (see the documentation guidelines at http://equity.psu.edu/ods/guidelines/ documentation-guidelines). If the documentation supports the need for academic adjustments, ODS will provide a letter identifying appropriate academic adjustments. Please share this letter and discuss the adjustments with your instructor as early in the course as possible. You must contact ODS and request academic adjustment letters at the beginning of each semester.

Additional Considerations:

Grade Disputes: There may be instances in which an assignment or quiz was graded incorrectly or potentially unfairly. If such a case arises, please return the graded item with a piece of paper stapled to the front explaining the error. I will review it and adjust the grade accordingly and reply to your comment. Please do not simply give me the graded item and verbally tell me the problem. There are too many papers for me to keep track of in my head.

Technology: Please refrain from using cell phones, tablets, and laptops in-class for purposes other than taking notes. They can be distracting for those around you.

Possible Issues: If an issue arises during the semester that compromises your ability to perform in this class, please contact Prof. Gorski ***as soon as possible***. It will be much easier to address an issue when or before it arises, then afterwards.

Tentative Course Schedule

Note that the required readings for each section are available on the schedule on Canvas

Week	Date	Class	Event
1	1/9	Course Introduction	
	1/11	1. Case studies	
2	1/16	2. Decision making	
	1/18	3. Units of measurement	
3	1/23	4. Material Balances I	HW 1 due
	1/25	5. Chemical Kinetics ׀ Quiz 1	Quiz 1
4	1/30	6. Material Balances II	
	2/1	7. Energy Balances	
5	2/6	8. Chemical Equilibrium	HW 2 due
	2/8	9. Nuclear Chemistry ׀ Quiz 2	Quiz 2
6	2/13	10. Organic Chemistry	
	2/15	11. Heat Pollution	
7	2/20	12. Finite Resources	HW 3
	2/22	13. Sustainability ׀ Quiz 3	Quiz 3
8	2/27	14. Acute Risks	
	3/1	15. Chronic Risks	
Spring Break			
9	3/13	16. Water Pollution I	HW 4 due
	3/15	17. Water Pollution II ׀ Quiz 4	Quiz 4
10	3/20	***No Class***	
	3/22	***No Class***	
11	3/27	18. Drinking Water Treatment	
	3/29	19. B.O.D.	
12	4/3	20. Wastewater Treatment I	HW 5 due
	4/5	21. Wastewater Treatment II ׀ Quiz 5	Quiz 5
13	4/10	22. Solid Waste	
	4/12	23. Air Pollution	
14	4/17	24. Climate change science	
	4/19	25. Climate change – Role of CO_2	
15	4/24	26. Climate change – CO_2 calculations	HW 6 due
	4/26	27. Quiz 6	Quiz 6