

SUBJECT: Introduction to Environmental Engineering - Administrative Instructions (syllabus)

CENG 3371 Introduction to Environmental Engineering

Class Time: Monday & Wednesday from 0800 am to 0855 am

Class Room: RBS 1031

Lab section 1: Tuesday from 2:30 pm to 5:15 pm (1430-1715) in RBS 1027

Lab section 2 Wednesday from 2:30 pm to 5:15 pm (1430-1715) in RBS 1027)

Professor: Dr. J. Torey Nalbone

Email: tnalbone@uttyler.edu

1. Welcome to CENG 3371 (Introduction to Environmental Engineering), the first of two-course series on environmental engineering which includes this course and a design course (CENG 4371). During the upcoming semester, you will find our study of Environmental Engineering to be interesting, challenging, and rewarding. Review the materials at the end of this Administrative Memorandum and review the course schedule (see Attachment 2) and the course topics (Attachment 1).
2. You are welcome to seek additional instruction during my posted office hours or simply arrange a mutually agreeable time to meet with me. For the sake of your grade please take advantage of my office hours; I have them for your benefit!
3. Class Room Procedures:
  - a. I will take daily time survey data, so please ensure the Time Survey Sheets are circulated.
  - b. It is a basic principle of professionalism that **“Professionals are not Late.”** Please come to class on time and leave on time. Interruption of lecture is not acceptable.
  - c. Bring study notes, textbook, note-taking material, and calculator to every class. Having your text book available as a ready resource during class will increase your learning. You may not borrow or exchange calculators during graded events. If your calculator fails during a graded exercise, I am not responsible to furnish a substitute. Please refer to Calculator Policy. Class preparation is your individual responsibility; take it seriously
  - d. Textbook: Environmental Engineering Principles and Practice. Richard O. Mines, Jr. Wiley 2014. ISBN 978-1-118-80145. **All students are expected to secure a copy of this textbook.** This text will be used for both this course and CENG 4371 (Environmental Engineering Design).
4. Exams and Grading:
  - a. Grade Breakout and Cutoffs:

<u>Course Points</u>		<u>Relative Grade Scale</u>	
Midterm Exams (2 at 250 each)	500		
Homework assignments: Problem Sets/Projects	300	A 90.00%	1800
Paper	100	B 80.00%	1600
Pop Quizzes	100	C 70.00%	1400
		D 60.00%	1200
Lab Memos (Lab Book Submission)	300	F <60.00%	<1200
Professional Practice Grade	200		
Final Examination	500		
	<u>2000 (100%)</u>		

You may fail and receive an “F” in this course if you earn less than 60% overall on Term exams or if you fail to earn at least 60% on the Final exam, **regardless of your course grade**. This distribution is to provide you a comparison of how well you are doing.

- b. Professional Practice Grade - During this semester, a portion of your grade in this course (10%) will be derived from what I consider professional practice expectations. These expectations include a professional demeanor and work ethic (Attitude), consistent daily/lab assignment reading/materials for class/Quizzes (Preparation), commitment to learning and fulfilling obligations demonstrated by on time arrival to class & lab (Attendance), and being engaged in class activities (Participation).
- c. Hour Exams and Final Exam:
  - 1) The dates for Hour Exams are included in the course schedule. Official reasons for missing an exam include official University participation, family emergency or other unforeseen circumstance. Regardless of the reason you are required to notify the instructor prior to the exam and as early as feasible. You are required to take a make-up Exam, regardless of your reason for missing the scheduled Exam. Report any conflict to me as soon as possible prior to the Exam.
  - 2) All the Exams and the Final are closed book and closed notes. You can only use approved FE equivalent calculator (see calculator policy below) and the CENG 3371 reference sheet from the FE/PE exams published by the NCEES or similar, that is supplied by the instructor for each examination.

#### **Calculator Policy**

**Only NCEES approved calculators will be permitted during tests and your test will be collected and your grade will be a zero if you are using a non-approved calculator.**

The approved calculators include the following: (Please check the NCEES website for a complete listing, [www.ncees.org/exams/calculator-policy/](http://www.ncees.org/exams/calculator-policy/))

- Hewlett Packard – HP 33s, HP 35s, and no others
- Casio – All FX 115 models
- Texas Instruments – All TI 30X or TI-36X models.
- If you are unsure about your calculator, it is your responsibility to check with the instructor for approval.

#### Laptops/PDAs/MP3 players/Cell Phones or other electronic devices

The use of any electronic device, except an approved calculator, is not permitted during exams. Your exam will be collected and your grade will be a zero if you are caught using a non-approved electronic device/calculators.

**The use of phones, MP3 players, and laptops is never permitted during lectures and labs.** Phones ringing or vibrating are distracting during class or if you are texting during class you will relinquish your device for the duration of the class. A second offense will result in a request for you to leave the classroom.

- d. Collection of Student Work: Throughout the semester I may collect student work (best, average, and worst) for the ABET course and outcomes notebooks. This will require me to make a copy of your work, keep your original and return a copy of the graded work to you. I will not draw attention as to what level of work you accomplished.
- e. Embedded indicators of accomplishment of program outcomes: At times throughout the semester, portions of student work will be analyzed to determine if our program is accomplishing stated program outcomes based on established metrics. If your work is below the minimum established metric (70%), you will be required to repeat the assignment or that portion of the assignment until you achieve the minimum acceptable standard based on the metric.

5. Homework: Homework problems will be assigned on an almost daily basis. Students may *discuss* their homework solutions with one another, but each student must submit their own, **independent** solutions (i.e. you may not just copy someone else's homework). **Individual homework must be done individually.** If you receive assistance from a fellow student on a particular problem you must cite that assistance within your solution. The production of a neat, organized, high-quality homework assignment cannot be overestimated nor can its importance to your course grade be overstated. A homework assignment should be something you are proud of and not something hastily “slapped together”. Toward this end, considerable emphasis will be placed on not only getting the correct answer but also on how the solution is presented. All homework is mandatory and becomes part of your grade, failure to submit any required homework will result in an incomplete. As an engineer your goal is to make a clear, logical, and professional presentation of your work, which is both accurate and correct. As such both your presentation and the accuracy of your work is important, and both will be graded. It is critical that you show all of your work and leave “foot prints” or “bread crumbs” so that it can be easily followed. No guess work should be required to see what you did. All submissions are due at the beginning of class on the due date. The homework due date is marked on the attached schedule sheet. **Late homework assignment will not be accepted.** However, in legitimate cases late assignment may be accepted with prior discussion with your professor (coordinated late submission). See late submissions below for grading adjustments for late work. *Completion credit may be given for homework turned in more than three days late this is entered in the grade book as half (50%) of the lowest grade earned on the assignment by the other students in the class. Failure to turn in all assignments may result in the grade of INCOMPLETE as a course grade.*

REMEMBER: **ALL** assistance you receive on your homework MUST be documented and attributed to the source from where you received the assistance (see below).

a. Homework - Problem Sets (PS)/projects

- 1) **All homework assignments are due at the beginning of the lecture on the date found either in the class schedule or on the assignment itself.**
- 2) You must use Engineering paper only for problems sets assigned or full-page printouts from Mathcad, Excel, etc. Problems submitted on other types of paper will not be graded and returned for resubmission. These resubmissions will be subject to grade reductions listed below. You may neatly tape or glue short computer printouts onto Engineer paper at the appropriate place in the logical flow of the problem or print out directly to engineering paper. Only use one side of a page. Clearly present a brief problem statement or a sketch with your solution. Clearly and concisely explain each step. For narratives of more than a line or two, use your word processor or the text capability if you are using MathCAD or Excel. If you are writing out a paragraph or more, you must type it in a word processing package.
- 3) Late Submissions. It is a basic principle of professionalism that **“Professionals are not Late.”** A “COORDINATED LATE” submission occurs when you will miss the suspense for a graded homework assignment and you contact me in advance. Notification immediately before the submission will not suffice. Point deduction up to the amounts below may be assessed for a “COORDINATED LATE” submission:
  1. Same Day late (after class) a deduction of 25% of the earned grade
  2. 24-48 hours late a deduction of 50% of the earned grade
  3. 48-72 hours late a deduction of 75% of the earned grade
  3. More than 72 hours late see description of completion credit above; however all **assignments must still be submitted** or you will receive and incomplete in the course.

Obviously, there are circumstances that will occur and make a timely submission impossible and I will work with you when and if they occur.

- 4) All homework in this course must be properly documented. As you are having your work reviewed it is likely that you might receive help from your classmates, just simply document it. Information from the course textbooks (equations and outlines of procedures), class notes, or me is considered immediately available to all students and need not be acknowledged or documented. **YOU ARE REQUIRED TO ACKNOWLEDGE AND DOCUMENT ALL OTHER ASSISTANCE AND REFERENCES USED.** Documentation will be accomplished in accordance with any manual for writing, footnote or endnote, for papers, but for written homework, just place the documentation right at the point you received help using Who and what assistance.
- b. Assigned readings. Doing the assigned reading prior to class will help you to understand the material presented during the instruction and will fill in gaps for things we do not cover (***I will not cover everything***). It will also make you more familiar with terms and concepts to be covered. To help motivate you to do the reading there may be unannounced quizzes that cover the assigned sections of the text.
7. There will be several opportunities to earn bonus points for additional work on problem sets, exams, or for completion of other optional assignments. Opportunities for bonus points will be clearly identified by me and announced in class. Make use of these opportunities to extend your learning.
8. Academic Misconduct: Plagiarism of homework and cheating on examinations will be interpreted as academic misconduct and will not be tolerated. Please refer to the University of Texas at Tyler current Undergraduate Catalog for academic policies and Manual of Policies and Procedures for Student Affairs (MOPPS, Chapter 8) regarding academic integrity, cheating and plagiarism. Academic dishonesty will not be tolerated. Ignorance of the rules and policies provides no protection from the consequences. Issues of this nature will be reported to the Office of Conduct and Intervention (formerly Judicial Affairs)
9. Students Rights and Responsibilities. To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link:  
<http://www.uttyler.edu/wellness/StudentRightsandResponsibilities.html>
10. Grade Replacement/Forgiveness. If you are repeating this course for a grade replacement, you must file intent to receive grade forgiveness with the registrar by the 10th day of class. Failure to do so will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates will receive grade forgiveness (grade replacement) for only three course repeats; graduates, for two course repeats during his/her career at UT Tyler.
11. State-Mandated Course Drop Policy. Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the 12th day of class (See Schedule of Classes for the specific date). Exceptions to the 6-drop rule include, but are not limited to, the following: totally withdrawing from the university; being administratively dropped from a course; dropping a course for a personal emergency; dropping a course for documented change of work schedule; or dropping a course for active duty service with the U.S. armed forces or Texas National Guard. Petitions for exemptions must be submitted to the Registrar's Office and must be accompanied by documentation of the extenuating circumstance. Please contact the Registrar's Office if you have any questions.
12. Disability Services. In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Student Accessibility and Resources counselor. If you have a disability, including a learning disability, for which you request an accommodation, please contact the Student Accessibility and Resources office in UC 3150, or call (903) 566-7079 (M-F; 8 a.m. to 5 p.m.). Additional information may also be obtained at the following UT Tyler Web address:  
<http://www2.uttyler.edu/disabilityservices>.

13. Student Absence due to Religious Observance. Students who anticipate being absent from class due to a religious observance must inform the instructor of such absences by the second class meeting of the semester. If the notification is not made the absence will not be excused.

14. Student Absence for University-Sponsored Events and Activities (Sports participation). If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

### **UT Tyler Honor Code**

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

#### Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link:<http://www.uttyler.edu/wellness/rightsresponsibilities.php>

### **Campus Carry**

We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>

### **UT Tyler a Tobacco-Free University**

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors. Forms of tobacco not permitted include cigarettes, cigars, pipes, waterpipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products. There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit [www.uttyler.edu/tobacco-free](http://www.uttyler.edu/tobacco-free).

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- The use of any electronic device, except an approved calculator, is not permitted during exams. Your exam will be collected and your grade will be a zero if you are caught using a non-approved electronic device/calculators. Any instances of a calculator inappropriately used during an exam will be the basis of alleging Academic Misconduct and may result in Failing (F) of the course at the determination of the course's instructor or the basis for a recommendation for expulsion from the University. Any Calculator used during an exam in this course must meet the requirements stated within the policy below.

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- Hewlett Packard – HP 33s, HP 35s, and no others
- Casio – All FX 115 models
- Texas Instruments – All TI 30X or TI-36X models.
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Attachment 1

**COURSE TOPICS**

*(Subject to change during course progression)*

**Topics Covered**

<u>SUBJECTS</u>	<u>LESSONS</u>
Course Administration and	
Introduction to Environmental Engineering	1
Environmental Public Policy and Ethics	1
Water Chemistry	2
Materials Balance/Kinetics	2
Risk Assessment	1
Sustainability	1
Water Resources Engineering and Groundwater	2
Water Treatment	4
Wastewater Treatment	4
Air Pollution	1
Solid Waste/ Hazardous Waste	1
Student Presentations	1
Site Tours	3
Laboratory Exercises	7
Exams	3
<b>Total Lessons</b>	<b>34</b>

## Attachment 2

**Initial Course Schedule** (Subject to change as needed throughout the semester)

Date	LSN	Material covered	Reading	Assigned	Due	Lab Activities/NOTES
13 Jan	1	Course Introduction, Intro to Environmental engineering.	Ch. 1			
15 Jan	2	Environmental Regulations and Public Policy.	Ch. 1	HW#1		
<b>20 Jan</b> 22 Jan	3	<b>MLK Holiday</b> Environmental Sustainability and Ethics	Ch. 10	Public Policy or Ethics Paper.	HW#1	
27 Jan 29 Jan Lab 1	4 5 L1	Environmental public health and Risk Assessment	Ch. 11	HW#2 LM#1		<b>Census Day</b> Read: Handout ASTM Std. for ESA Complete Safety Policy, ESA Phase I Descriptive, Site Visit.
3 Feb 5 Feb Lab 2	6 7 L2	Essential chemistry concepts	Ch. 2	HW#3 LM#2	HW#2 LM#1	Calculation of Risk
10 Feb 12 Feb	8 9	Essential biology concepts	Ch. 4	HW#4	HW#3 LM#2	
17 Feb 19 Feb Lab 3	10 11 L3	Water and Wastewater characteristics/ pollution	Ch.3	HW#5 LM#3	HW#4	Water Standards/Buffer
24 Feb 26 Feb Lab 4	12 13 L4	Materials Balance and Kinetics	Ch. 5	HW #6 LM#4	HW#5 LM#3	Water Quality
<b>2 Mar</b> 4 Mar	14 15	<b>EXAM I</b> Water Resources Engineering	Handout	HW#7	HW#6 LM#4	
<b>9 Mar to 14 Mar</b>		<b>Spring Break</b>				
16 Mar 18 Mar Lab 5	16 17 L5	Water Resources Engineering Ground water hydrology	Handout	HW #8 LM#5	HW#7, Public Policy or Ethics Paper, LM#5	Ground Water Demonstration/Filtration
23 Mar 25 Mar Lab 6	18 19 L6	Water Treatment	Ch. 6	HW #9 LM#6	HW#8 LM#5	Water Softening and Flocculation
30 Mar 1 Apr Lab 7	20 21 L7	Water Treatment	Ch. 6	HW#10 LM#7	HW#9 LM #6	<b>Last Day to Withdraw</b> Water Treatment Plant Tour?
<b>6 Apr</b> 8 Apr Lab 8	22 23 L8	<b>EXAM II</b> Wastewater Treatment	Ch.7	HW#11 LM#8	HW#10 LM#7	BOD test
13 Apr 15 Apr Lab 9	24 25 L9	Wastewater Treatment	Ch. 7	HW #12 LM#9	HW#11 LM#8	Wastewater Treatment Plant Tour?
20 Apr 22 Apr Lab 10	26 27 L10	Solid/Hazardous waste Air pollution	Ch.8 & Ch. 12 Ch.9	HW#13 LM#10	HW#12 LM#9	Sanitary Landfill Tour?
<b>27 Apr to 2 May</b>	28	<b>Final Exams</b>			HW#13 LM#10	

## Attachment 2

**Modified Course Schedule** (Subject to change as needed throughout the semester)

Date	LSN	Material covered	Reading	Assigned	Due	Lab Activities/NOTES
13 Jan	1	Course Introduction, Intro to Environmental engineering.	Ch. 1			
15 Jan	2	Environmental Regulations and Public Policy.	Ch. 1	HW#1		
<b>20 Jan</b> 22 Jan	3	<b>MLK Holiday</b> Environmental Sustainability and Ethics	Ch. 10	Public Policy or Ethics Paper.	HW#1	
27 Jan 29 Jan Lab 1	4 5 L1	Environmental public health and Risk Assessment	Ch. 11	HW#2 LM#1		<b>Census Day</b> Read: Handout ASTM Std. for ESA Complete Safety Policy, ESA Phase I Descriptive, Site Visit.
3 Feb 5 Feb Lab 2	6 7 L2	Essential chemistry concepts	Ch. 2	HW#3 LM#2	HW#2 LM#1	<b>Calculations of Risk</b>
10 Feb 12 Feb Lab 3	8 9 L3	Essential biology concepts	Ch. 4	HW#4	HW#3 LM#2	Water Standards/Buffer
17 Feb 19 Feb Lab 4	10 11 L4	Water and Wastewater characteristics/ pollution	Ch.3	HW#5 LM#3	HW#4	<b>Water Quality</b>
24 Feb 26 Feb	12 13	Environmental Modeling of Materials Balance and Kinetics Water Resources Engineering	Ch. 5 Handout	HW #6 LM#4	HW#5 LM#3	
<b>2 Mar</b> 4 Mar	14 15	<b>EXAM I</b> Ground water hydrology	Handout	HW#7	HW#6 LM#4	<b>Ground Water Demonstration/Filtration</b>
<b>9 Mar to 14 Mar</b>		<b>Spring Break</b>				
16 Mar 18 Mar Lab 5	16 17 L5	Water Treatment	Ch. 6	HW #8 LM#5	HW#7, Public Policy or Ethics Paper, LM#5	<b>Water Treatment Plant Tour</b>
23 Mar 25 Mar Lab 6	18 19 L6	Water Treatment	Ch. 6	HW #9 LM#6	HW#8 LM#5	<b>Water Softening and Flocculation</b>
30 Mar 1 Apr Lab 7	20 21 L7	<b>Wastewater Treatment</b>	Ch.7	HW#10 LM#7	HW#9 LM #6	<b>Last Day to Withdraw</b> <b>BOD test and Streeter Phelps Model for DO</b>
<b>6 Apr</b> 8 Apr Lab 8	22 23 L8	<b>EXAM II</b> Wastewater Treatment	Ch. 7	HW#11 LM#8	HW#10 LM#7	Wastewater Treatment Plant Tour?
13 Apr 15 Apr Lab 9	24 25 L9	<b>Air pollution</b>	Ch.9	HW #12 LM#9	HW#11 LM#8	Solids Determination and Measurement
20 Apr 22 Apr Lab 10	26 27 L10	Solid waste management/ Hazardous waste <b>classification and management</b>	Ch.8 & Ch. 12	HW#13 LM#10	HW#12 LM#9	Sanitary Landfill Tour?
<b>27 Apr to 2 May</b>	28	<b>Final Exams</b>			HW#13 LM#10	



**CENG 3371 Introduction to Environmental Engineering  
Course Objectives:**

1. List and define the major quality parameters for environmental media.
2. Describe the components of a sustainable environment.
3. Discuss and evaluate the ethical and public policy issues associated with environmental quality.
4. Define, describe and discuss the necessity of water quality parameters.
5. Discuss important regulatory aspects of water quality, air quality and solid waste management.
6. Relate water quality parameters to environmental health.
7. Describe and evaluate environmental parameters to human (population) health.
8. Predict and evaluate changes in the environment owing to the release of effluents or pollution.
9. Describe and analyze the water treatment processes.
10. Describe and analyze the wastewater treatment processes.
11. Describe and evaluate the atmospheric (meteorological) effects on air pollutants
12. Describe and analyze systems for managing solid waste and measures take to protect the environment
13. Apply engineering and science knowledge in the evaluation of contamination control.
14. Distinguish specific engineering and science skills necessary in the area of Environmental Engineering.