

SUBJECT: Introduction to Environmental Engineering - Administrative Instructions, AY242 (2252)

1. Welcome to CENG 3371 (Introduction to Environmental Engineering), the first a 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. I have specific office hours and I can set aside specified office time for assisting you with homework for CENG 3371, if needed. See my posted hours on CANVAS CENG 3371 or RBS 2003. If you will miss a scheduled class, you are still responsible for the material. I have two designated times for CENG 3371 Assistance (MW 0730-0900)
3. 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!
4. Classroom Procedures:
  - a. YES, I will take daily attendance, and this year I will include a study time survey for time management purposes, so please ensure the Roster and Time Survey Sheets are circulated.
  - b. Bring study notes, 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
  - c. Textbook: Introduction to Environmental Engineering, 6<sup>th</sup> Edition, Davis, Mackenzie L. and Cornwell, David A., MHHE publisher. **All students are expected to secure a copy** (may be any edition that you may find available) **and I may allow its use on unannounced reading quizzes**. This text will be used for both this course and as a supplemental text in CENG 4371 (Environmental Engineering Design) Publisher – McGraw Hill Higher Education, ISBN 978-1-260-24109-9, 2023.
5. Exams and Grading:

<u>Course Points</u>		<u>Relative Grade Scale</u>	
Hour Exams (2 at 150 each)	300		
Homework/Problem Sets	300	A 90.00%	1890
Ethics Paper	100	B 80.00%	1680
Public Policy Paper	100	C 70.00%	1470
Group Presentation (Environmental Event)	200	D 60.00%	1260
Lab Memos (Lab Book Submission)	250	F <60.00%	<1259
Professional Practice Grade	200		
Research paper (Environmental Catastrophe	200		
Final Examination	450		
	<u>2100 (100%)</u>		

You may fail and receive an “F” in this course if you earn less than 65% overall on Term exams or if you fail to earn at least 50% on the Final exam, **regardless of your course grade**. This distribution is to provide you a comparison of how well you are doing.

- a. 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).
- b. All EXAMS are equally weighted in the course syllabus:
  - 1) The dates for All 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 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 and MP3 players is never permitted during lectures. 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.

- c. Collection of Student Work: Throughout the semester I will collect student work (best, average, and worst) for the ABET course and copies of the student's work will be included in my record of the course. This will require me to make a copy of your work and return the work to you..
  - d. 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.**
6. Homework: Homework problems are assigned on a daily basis as . 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). **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 "footprints" 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. Assignments turned in after that time will be considered late. 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).

NOTE:

All submissions are due at the beginning of class on the due date. Late submissions shall be placed in the CENG 3371 folder found in the filing cabinet marked (HOMEWORK) in RBS 1003.

- a. Homework - Problem Sets (PS)
  - 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 Math CAD 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.

#### **STUDENT POLICIES REPEATED IN THE CANVAS SITE FOR THE COURSE**

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.

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:  
[www.uttyler.edu/academics/success-services/disability-services](http://www.uttyler.edu/academics/success-services/disability-services)
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.
15. Additional Policies and requirements available in Student MOPP:  
[www.uttyler.edu/offices/student-success/mopp/](http://www.uttyler.edu/offices/student-success/mopp/)

Attachments x4

J. Torey Nalbone  
Ph.D. CIH (6230CP)

**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	1.5
Water Systems (Chemistry & Biology)	3
Materials Balance/Kinetics	2
Risk Assessment	2.5
Green Engineering & Sustainability	1.5
Water Resources Engineering and Groundwater	2
Water Treatment	3
Wastewater Treatment	3
Air Pollution	2
Solid Waste/ Hazardous Waste	3
Student Presentations	1
Site Tours	3
Laboratory Exercises	13
Midterm Exams	2
Final Exam	1
<b>Total Learning Opportunities</b>	<b>41</b>

## Attachment 2

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

DATE	LSN	Material covered	Reading	Assigned	Due	Lab Activities	Lab Due Date
14-Jan	1	Course Introduction Env. Regulations	Ch. 1	HW 1			
16 -Jan	2	Public Policy and Green	Handout	Policy Paper			
No Lab	3						
20-Jan		Martin Luther King Holiday					
21-Jan	4	Sustainability and Ethical Practices	Ch. 13	Ethics Paper	HW1		
23 Jan	5	Public Health Risk and Toxics	Ch. 3				
Lab 1	6					L1 Introduction to lab protocol and RISK	
28-Jan	7	Environmental Chemistry	Ch. 5	HW2			
30-Jan	8	Applications of Chemistry	Ch. 5				
Lab 2	9					L2 Testing Surface Waters	
4-Feb	10	Using the Water Chemistry	Ch. 5	HW3	HW2		
6-Feb	11	Concepts and Application of Biology	Handout	Research Paper			Lab 1 Group Report
Lab 3	12					L3 pH and Buffer Systems	
11-Feb	13	Risk Assessment/Review	Ch. 3	HW4	HW3		Lab 1 Individual
13-Feb	14	Risk Assessment	Ch 3		HW4		Lab 2 Group
Lab 4	15				Policy Paper	L4 Biology and Ecology of Water	
18-Fe b	16	EXAM I					
20-Feb	17	System Modeling and Reactors	Ch. 2	HW5			Lab 3 Group
Lab 5	18					L5 Kinetics and reactions	
25-Feb	19	Kinetics of Processes/Mass Balance	Ch. 2				
27-Feb	20	Ground Water & Water Quality	Handout	HW6	HW5		Lab 4 Individual
Lab 6	21					L6 Water Treatment Plant Tour	
4-Mar	22	Water Quality and Abundance	Ch. 4				
6-Mar	23	Water Treatment	Ch. 6	HW7	HW6		Lab 5 Individual
Lab7	24					L7 Water Softening and Floc	
11-Mar	25	Water Treatment	Ch. 6		HW7		
13-Mar	26	Water Treatment	Ch. 6		Ethics Paper		Lab 6 WTP Memo
Lab 8	27					L8 BOD and Streeter Phelps	
Mar 17		SPRING BREAK					
25-Mar	28	EXAM II					
27Mar	29	Wastewater Treatment	Ch. 7	HW8			Lab 7 Group
Lab 9	30					L9 WWTP Tour	
1-Apr	31	Wastewater Treatment	Ch.8		HW8		
3-Apr	32	Wastewater Treatment	Ch.8				Lab 9 Group
Lab 10	33					L10 Project Presentations	
8-Apr	34	Air Pollution	Ch. 9	HW9			
10-Apr	35	Air Pollution	Ch. 9				Lab 10 Slides
Lab 11	36					L11 SWDF Tour (if available)	
15-Apr	37	Solid Waste Management	Ch.11		HW9		
17-Apr	38	Solid Waste Management	Ch.11	HW10			L11 Individual
Lab 12	39					L12 Reduce, Reuse, Recycle	
22-Apr	40	Hazardous Waste	Ch. 12		Paper Due		
24-Apr	41	Hazardous Waste	Ch. 12		HW10		
Lab 13	42					Review for Final	
28 Apr-2 May		FINALSWEEK					
26-Apr	43	FINAL EXAM (Comprehensive)					

LECTURE 1400 to 1455 T and R LAB 1505 to 1750 T or R

## Dr. J. Torey Nalbone

I was born on Staten Island, New York and lived there until the age of 10, when I moved to Spring, Texas a suburb 20 miles outside of Houston. I completed high school in 1977 and was accepted to Baylor University in Waco, Texas. Originally as Pre-Med, I earned a B.S. in Biology with a minor in Chemistry in 1981, but more importantly met my future wife (Katherine). After graduating from Baylor, I entered graduate school at the University of Texas Health Science Center at Dallas (Southwestern) for graduate study in Forensic Sciences and began working at the Dallas County Crime Lab (Southwest Institute of Forensic Sciences, SWIFS). In that program I learned toxicology and legal proceedings for the investigation of death and accidents. I then transferred to the University of Texas at Dallas and pursued a Master's degree in Environmental Science Engineering. I continued to work at SWIFS as an environmental forensic chemist until 1987 when I moved to Medford, Oregon to take a position as Enforcement Manager for the Oregon Accident Prevention Division (Oregon's OSHA program) driving with my family, wife and 1 year old daughter (Adrienne).

In Oregon, I was responsible for the enforcement program for over 50% of the state. In 1989 my second daughter (Sarah) was born and the following year I joined the State of Oregon State Fire Marshal as a Deputy and focused on Fire-Life Safety inspections and Hazardous Chemical storage. I was also part of the State-wide HAZ-MAT response team. This provided me with a great opportunity to practice in the areas of fire suppression systems, fire safety and plant safety for fire and explosion.

In 1992 the Texas Department of Criminal Justice (state prison system) was looking for an Industrial Hygiene Manager so I moved my family back to Texas where I joined the faculty of Sam Houston State University to teach Environmental Regulations, Hazardous Materials Management, and Industrial Hygiene and provide consulting services to the Texas prison system. Made up of a series of prison facilities located across the entire state and they were in the middle of a prison building boom. The system increased from 30 to 114 facilities and nearly 30,000 employees and over 160,000 offenders (inmates) in my time with them from 1992 till 1999. In addition, in order to be considered part of the university faculty I went back to graduate school at Texas A&M University this time to pursue a Ph.D. in Engineering.

In 1999, I accepted a full-time faculty appointment at the University of Texas Health Center at Tyler as Assistant Professor of Occupational Health Science and became the Director of the Environmental Science Graduate program, so I moved my family from Huntsville, Texas the center of TDCJ administration, northeast to Tyler. This graduate program was in cooperation with Stephen F Austin University and provided a Master's degree in Environmental Science with our emphasis on physicians wanting to be certified in Occupational Medicine.

Finally, in 2006 I was asked to join the faculty of the new Civil Engineering Department at the University of Texas at Tyler but this time I didn't have to move my family. This way both of my daughters were able to graduate from high school and go off to college, Adrienne to Texas Tech where she received a degree in Speech Therapy (2009) and Sarah to Baylor where she received her degree in Health Education (2012). Both are now married and my sons-in law are a Civil Engineer (Trevor married to Adrienne) and a Land/Property Lawyer (Stuart married to Sarah).

I enjoy old movies, and woodworking. I am a member of our Church Choir (Bass) and Sunday school. My areas of research interest are environmental risk assessment, air pollution systems and analysis of environmental contaminants, especially particulate pollution and the design of cleaning systems. I also have interest in human health exposure, exposure prevention/control and indoor air quality. I look forward to getting to know you this semester and take seriously my responsibility to help you learn as much as possible about Environmental Engineering.

My contact information:

**UT Tyler email**

[tnalbone@uttyler.edu](mailto:tnalbone@uttyler.edu)

**Gmail**

[tnalbone1059@gmail.com](mailto:tnalbone1059@gmail.com)

**Personal Phone:**

(903) 312-2029 cell (you may text to this number)

**Office and Phone:**

RBS 2003; (903) 565-5520

**Office Hours:**

See **CANVAS Info page**.



**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.