

MEMORANDUM FOR STUDENTS ENROLLED IN CENG 4350

SUBJECT: CENG 4350 Administrative Instructions – Spring 2022

Course Specific Policies

1. CENG 4350 Uncertainty and Risk in Engineering
Class Time: Monday and Wednesday 8:00 AM – 9:25 AM
Room: RBS 2019
2. Instructor: Dr. Gokhan Saygili
Office: RBS 1007
Email: gsaygili@uttyler.edu
3. Welcome to CENG 4350 – Uncertainty and Risk in Engineering. In this course we will explore the fundamental principles of data reduction and acceptable risk, random variables, probability distributions, uncertainty modelling, Monte Carlo simulations, hypothesis testing, and checklist and guidelines for review of technical reports.

This course aims to provide an understanding of probability concepts and their spreadsheet applications on civil engineering problems. We'll also study some of the case histories (e.g. New Orleans after Hurricane Katrina) in order to learn from failures in engineering practice and understand the importance of turning disaster into knowledge.

A tentative course schedule and specific course objectives are provided in Attachment 1.

4. You are encouraged to seek additional instruction during my office hours or by appointment. Office hours this semester will be on Monday and Wednesday at 1:20 PM – 2:20 PM. These hours are posted outside my office door. **I also maintain an open door policy so that if I'm in my office, during regular office hours, feel free to drop by and ask a question.**
5. I'll provide you the course materials, no textbook is required.
6. Course Materials:
 - a. I will post all course materials on Canvas. Canvas enrollment is now automatic with course registration, but you should ensure that you can access the class Canvas page.
 - b. I will post the course materials under the "Modules" each week. Every Monday, I will post reading lists, slides, external links, videos, exams or homework that will be covered on that week.
 - c. I may also on occasion email you homework tips or points of clarification that are made aware to me. All email correspondence will take place through the Canvas system, and therefore using your Patriot email accounts; so check your Patriot email account often.

7. Exams and Grading:

a. Grade Breakout and Cutoffs:

The course will consist of three tests (Test 1, Test 2 and Final Exam), each of which will constitute 10% of your final grade. In addition to these, there will be homework assignments and a term project.

Professional Practice. During this semester, a portion of your grade in this course (10%) will be derived from a level of professional practice expectations. These expectations include a professional demeanor and work ethic (attitude) and homework & mid-term tests completed on time.

<u>Course Points</u>	<u>Points</u>	<u>Grade Scale</u>
Exams (Test 1, Test 2, and Final Exam)	50	A 90.0%
Assignments	40	B 80.0%
Professional Practice Grade	10	C 70.0%
		D 60.0%
		F <60.0%

University grade breaks will be used in final grade posting. If you earn a cumulative average of less than 65% on all exams you may fail the course, **regardless of your course grade.**

The dates for all exams are included in the course schedule. Official reasons for missing an exam are outlined in the UT Student Handbook. You are required to take a make-up exam, regardless of your reason for missing the scheduled exam.

b. Collection of Student Work: Throughout the semester I will 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.

c. 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, 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.**

8. Homework: Homework problems will typically be assigned on a weekly basis. The homework due date will be clearly given with the homework assignment. Homework is due by 11:59 pm on the due date. Please submit your work through Canvas.

HOMEWORK FORMAT: 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 are important, and both will be graded. It is critical that you show all of your work and leave "footprints" so that it can be easily followed.

Problem Sets:

1) Late Submissions. It is a basic principle of professionalism that **"Professionals are not late."** A "COORDINATED LATE" submission occurs when you will miss the deadline for a graded homework assignment and you contact me in advance. Notification immediately before the submission will not suffice. Deductions to your assignment grade for late submissions will be given as follows:

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| 1. 0-24 hours late | a deduction of 25% of the earned grade |
| 2. 24-48 hours late | a deduction of 50% of the earned grade |
| 3. More than 48 hours late | No credit. <u>Assignments must still be submitted.</u> |

Obviously there are circumstances that can occur that make a timely submission impossible and I will work with you when and if they occur. *I will not play the game of having a stack of incomplete homework assignments turned in on the last day of class. Late assignments should still be submitted within a week unless you coordinate otherwise with me. Habitually late homework WILL have a significant negative impact on your professional practice grade!*

- 2) All homework in this course must be properly documented. 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.
9. There may be 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 Canvas. Make use of these opportunities to extend your learning!
10. 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.
11. 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>
12. 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>
13. 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, water pipes (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.

14. Student Accessibility and Resources

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University offers accommodations to students with learning, physical and/or psychiatric disabilities. If you have a disability, including non-visible disabilities such as chronic diseases, learning disabilities, head injury, PTSD or ADHD, or you have a history of modifications or accommodations in a previous educational environment you are encouraged to contact the Student Accessibility and Resources (SAR) office and schedule an interview with the Accessibility Case Manager/ADA Coordinator, Cynthia Lowery Staples. If you are unsure if the above criteria applies to you, but have questions or concerns please contact the SAR office. For more information or to set up an appointment please visit the SAR office located in the University Center, Room 3150 or call 903.566.7079. You may also send an email to cstaples@uttyler.edu

15. Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

16. Student Absence for University-Sponsored Events and Activities

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.

17. Social Security and FERPA Statement

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

18. Student Standards of Academic Conduct

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

i. "Cheating" includes, but is not limited to:

- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
- collaborating with or seeking aid from another student during a test or other assignment without authority;
- discussing the contents of an examination with another student who will take the examination;
- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructor has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
- substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
- paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
- falsifying research data, laboratory reports, and/or other academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
- misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.

ii. "Plagiarism" includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the submission of it as one's own academic work offered for credit.

iii. "Collusion" includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.

iv. All written work that is submitted will be subject to review by SafeAssign™, available on Canvas.

UT Tyler Resources for Students

- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu
 - UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu
 - The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
 - UT Tyler Counseling Center (903.566.7254)
19. Technical Information: If you experience technical problems or have a technical question about this course, you can obtain assistance by emailing itsupport@patriots.uttyler.edu or call 903.565.5555.

When you email IT Support, be sure to include a complete description of your question or problem including:

- The title and number of the course
- The page in question
- If you get an error message, a description and message number
- What you were doing at the time you got the error message

You may also visit the Help Tab in Canvas for useful information or check out On Demand Learning Center for Students: <http://ondemand.Canvas.com/students.htm>

UT Tyler guide for technical assistance and necessary skills for taking online or hybrid course:

<http://lms-media.uttyler.edu/fileman/oid/resource/index.html#Technical>

Netiquette Guide: "Netiquette" is network etiquette, the do's and don'ts of online communication. Netiquette covers both common courtesy online and informal "rules of the road" of cyberspace. Review and familiarize yourself with the guidelines provided. <http://lms-media.uttyler.edu/fileman/oid/resource/index.html#Netiquette>

Important Covid-19 Information for Classrooms and Laboratories

Students are required to wear face masks covering their nose and mouth, and follow social distancing guidelines, at all times in public settings (including classrooms and laboratories), as specified by Procedures for Spring 2022 Return to Normal Operations. The UT Tyler community of Patriots views adoption of these practices consistent with its Honor Code and a sign of good citizenship and respectful care of fellow classmates, faculty, and staff.

Students who are feeling ill or experiencing symptoms such as sneezing, coughing, or a higher than normal temperature will be excused from class and should stay at home and may join the class remotely. Students who have difficulty adhering to the Covid-19 safety policies for health reasons are also encouraged to join the class remotely. Students needing additional accommodations may contact the Office of Student Accessibility and Resources at University Center 3150, or call (903) 566-7079 or email saroffice@uttyler.edu.

Recording of Class Sessions

Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission

CENG 4350 - Uncertainty and Risk in Engineering - Course schedule (Spring 2022)

Week	Subject	Homework
Week 1	Basic Random Variables and Graphical Analysis of Variability	HW#1
Week 2	Quantitative Analysis of Variability	HW #2
Week 3	Events and Probabilities Post-Disaster Engineering Reconnaissance Efforts	HW#3
Week 4	Probability distributions – Normal Distribution DesignSafe - Cyber Infrastructure	HW #4
Week 5	Probability distributions – Lognormal Distribution Reliability-based Design Procedures	HW #5
Week 6	Midterm I	
Week 7	Probability distributions – Binomial, Geometric, Exponential, and Poisson distributions	HW #6
Week 8	Evaluating Design Alternatives	HW #7
	Spring Break	
Week 9	Multiple Random Variables and Spreadsheet Applications	HW #8
Week 10	Hazard, Risk, and Reliability in Civil Engineering Practice	HW #9
Week 11	Monte Carlo Simulation	HW #10
Week 12	Checklist and Guidelines for Review of Technical Reports	HW #11
Week 13	Hypothesis testing	HW #12
Week 14	Final Exam	

CENG 4350 - Uncertainty and Risk in Engineering Course Objectives:

1. Understand data reduction and acceptable risk
2. Generate spreadsheets for probability distributions
3. Produce spreadsheets for Monte Carlo Simulations
4. Perform hypothesis testing
5. Use review checklists and guidelines for technical reports