ENGR 0020 PROBABILITY AND STATISTICS FOR ENGINEERS I
Course Syllabus: Spring 2019

Lecture: Tuesday and Thursday 9:30AM-10:45AM ; G31 Benedum Hall
Recitations: Fridays; 9:00AM-10:50AM; G28 Benedum Hall
Fridays; 1:00PM – 2:50PM; G26 Benedum Hall

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Office Hours: Wednesdays 2:00pm-3:00pm and by appointment

Course Web Page: Go to https://courseweb.pitt.edu and enter your University Computer Account username and password. If you are on the roster, ENGR 0020 will be listed under "My Courses"; click on it to have access to everything that's been posted. Please check the site regularly for lecture notes, videos, important announcements, homework assignments, quizzes and grades.

Text: Walpole, Myers, Myers and Ye, "Probability and Statistics for Engineers and Scientists", Ninth Edition

Teaching Assistant: Shaoning Han, shaoning.han@pitt.edu

Grader: Bowen Lai eib11@pitt.edu

Course Description:
This course is designed for students majoring in engineering. Topics include: data analysis, probability, random variables, discrete and continuous probability distributions, estimation and hypothesis testing, analysis of variance and introduction to linear regression.

Objectives include:
- To provide an understanding of why good statistics are critical to effective decision making.
- To acquaint the students with the fundamental concepts of probability and statistics.
- To provide an understanding of the processes by which real-life statistical problems are analyzed.
- To develop an understanding of the role of statistics in engineering.
- To familiarize students with computer-based statistical analysis through available software packages.

Applicable ABET Outcomes:
- Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

Lectures: This course will be taught in the flipped mode. The flipped classroom approach will be discussed during the first lecture in detail.

Homework: Homework problems will be assigned each week and are due in recitation. Late homework is not accepted and homework not turned in will receive a score of 0. All work (computer and manual) should be shown for each problem so that partial credit may be given.

Class Conduct: Please turn off your phones prior to the beginning of class. If you feel the need to text or check your email during class, kindly leave the room. Please pick up graded assignments, quizzes, and exam papers in a timely manner. Failure to do so deprives you of the benefit of any feedback provided, and it conveys an impression of not taking the course seriously.

Email Policy: I will respond to emails as promptly as I can. However, I will not address detailed technical questions via email, I may not respond on weekends and after 5PM.

Re-Grades: If you feel there has been an error in grading an assignment, you have **one week** from the day it was returned in class to submit it for a re-grade. When you resubmit the assignment, it must be accompanied by a written explanation of the potential grading mistake.

In Class Work /Class Exercises: There will be class exercises assigned; if you are not in class you will be given a score of 0.

Quizzes: Weekly quizzes will be assigned online. If you miss a quiz, you will receive a score of 0.

Exams: Three exams are scheduled throughout the course. If you must miss an exam, please make alternative arrangements with the instructor **BEFORE** the exam is given. If you miss an exam without prior notification, you will receive a score of 0 for that exam except under extenuating circumstances.

Grading:	Exam 1	25%
	Exam 2	25%
	Exam 3	25%
	Homework	10%
	Quizzes and In-class work	15%

Final grades will be assigned as follows:

A 93-100%	C+ 77-79.9%	D- 60-62.9%
A- 90-92.9%	C 73-76.9%	F Below 60%
B+ 87-89.9%	C- 70-72.9%	
B 83-86.9%	D+ 67-69.9%	
B- 80-82.9%	D 63-66.9%	

TENTATIVE SCHEDULE

	Lecture Topics	**Homework**
Week 1	Ch. 1 Introduction and Descriptive Statistics / Ch. 2 Probability	HW 1 due (Ch.1)
Week 2	(Monday-Labor Day) Ch. 2 Probability	HW 2 due (Ch.2)
Week 3	Ch. 2 Probability / Ch. 3 Random Variables and Probability Distributions	HW 3 due (Ch. 2/3)
Week 4	Ch. 3 Random Variables and Probability Distributions /Ch. 4 Mathematical Expectation	HW 4 due (Ch. 3/4)
Week 5	Ch. 4/ Ch. 5 Some Discrete Probability Distributions / Ch. 6	HW 5 due (Ch. 4/5)
Week 6	Ch. 6 Some Continuous Probability Distributions/ **Exam 1**	HW 6 due (Ch. 5/6)
Week 7	Ch. 8 Sampling/ Ch. 9 One and Two Sample Estimation	HW 7 due (Ch. 6/8)

Week 8	(Mon. Fall Break) Ch. 9	HW 8 due (Ch. 8/9)
Week 9	Ch. 9 / Ch. 10 One and Two Sample Tests of Hypothesis	HW 9 due (Ch. 9/10
Week 10	Ch. 10 One and Two Sample Tests of Hypothesis	HW 10 due (Ch. 10)
Week 11	Ch. 10 / Ch. 11 Regression / **Exam 2**	HW 11 due (Ch. 10/11)
Week 12	Ch. 11 Regression	HW 12 due (Ch. 11)
Week 13	Ch. 11 / Ch. 13 ANOVA - Thanksgiving	HW 13 due (Ch. 13)
Week 14	Ch. 13 One-Factor ANOVA /Ch. 14 Two-Factor ANOVA	HW 14 due (Ch. 13/14)
Week 15	Ch. 14 Two-Factor ANOVA / Review	HW 15 due (Ch. 14)
Exam 3	**TBA**	

Academic Integrity

All students are expected to adhere to the standards of academic honesty. Any student engaged in cheating, plagiarism, or other acts of academic dishonesty would be subject to disciplinary action. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity http://www.provost.pitt.edu/info/ai1.html. This may include, but is not limited to the confiscation of the examination of any individual suspected of violating the University Policy.

Disability Services

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Statement on Classroom Recording

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

Student Opinion of Teaching Surveys

Students in this class will be asked to complete a *Student Opinion of Teaching Survey*. Surveys will be sent via Pitt email and appear on your CourseWeb landing page during the last three weeks of class meeting days. Your responses are anonymous. Please take time to thoughtfully respond, your feedback is important to me. Read more about *Student Opinion of Teaching Surveys*.

Diversity and Inclusion (*New for the Swanson School of Engineering*)

The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, see: http://diversity.pitt.edu/affirmative-action/policies-procedures-and-practices.

I ask that everyone in the class strive to help ensure that other members of this class can learn in a supportive and respectful environment. If there are instances of the aforementioned issues, please

contact the Title IX Coordinator, by calling 412-648-7860, or e-mailing titleixcoordinator@pitt.edu. Reports can also be filed online: https://www.diversity.pitt.edu/make-report/report-form. You may also choose to report this to a faculty/staff member; they are required to communicate this to the University's Office of Diversity and Inclusion. If you wish to maintain complete confidentiality, you may also contact the University Counseling Center (412-648-7930).