Course	**ENGR 3341.007**
Course Title	**Probability Theory and Statistics**
Professor	Kathleen Myers, PhD
Term	Fall 2016
Meetings	Tuesday & Thursday: 1:00pm-2:15pm, CB2 1.202

Professor's Contact Information

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Teaching Assistants

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General Course Information

Pre-requisites MATH 2419

Course Description

This course deals with probability theory and discrete and continuous random variables. It covers axioms of probability, conditional probability, Baye's theorem, counting methods, random variables, probability density function (pdf), cumulative density function, expected value and functions of a random variable. The course also covers joint, conditional, and marginal pdf's of multiple random variables, as well as central limit theorem and its applications. Linear regression and confidence interval calculations will also be covered.

Learning Outcomes

Students are expected to demonstrate the ability to:

1. Understand probability axioms and calculate basic set probabilities
2. Understand random variables and their probability distributions and densities
3. Extend to two random variables and find the linear regression line
4. Understand the Central Limit Theorem and calculate confidence intervals

Required Texts & Materials

"Introduction to Probability, Statistics, and Random Processes", Pishro-Nik
Available free online at *http://www.probabilitycourse.com/*

This course uses a classroom polling software known as Turning Point Cloud. In order to participate in the polling activities, students need to purchase a Turning License. The Turning License is available at the UTD Bookstore. For this course, you do not need an RF-LCD device (clicker) but may choose to purchase and use one in lieu of a mobile device. If you had recently purchased an RF-LCD Clicker from the UTD Bookstore, you may be able to obtain a free Turning License. The UTD Bookstore has a limited time offer for legacy students, and it is on a first-come, first-served basis. Please check with the Bookstore for more details. In class, to participate in the polling sessions, students will need to carry a mobile device (smartphone/tablet/laptop) or the RF-LCD device (clicker) to class. Please visit *http://www.utdallas.edu/elearning/resources* for more details.

Suggested Software R (Available for free download at *http://www.r-project.org*)

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

Assignments & Academic Calendar

Date	Chapter	Text
Aug. 23	Chapter 1: Basic Concepts	1.1-2
25		1.3
30		1.4
Sept. 1	Chapter 2: Counting Methods	2.1.1-2
6		2.1.3-4
8	**Exam I**	**Ch. 1-2 (CLO 1)**
13	Chapter 3: Discrete Random Variables	3.1.1-4
15		3.1.5
20		3.2.1-2
22		3.2.3-4
27	Chapter 4: Continuous Random Variables	4.1.1-2
29		4.1.3
Oct. 4		4.2
6		4.3
11	**Exam II**	**Ch. 3-4 (CLO 2)**
13	Chapter 5: Joint Distributions	5.1.1-2
18		5.1.3-4
20		5.1.5
25		5.2.1-2
27		5.2.3-4
Nov. 1		5.3
3	Chapter 7: Limit Theorems and Convergence	7.1-2
8	**Exam III**	**Ch. 5, 7 (CLO 3,4)**
10	Chapter 8: Statistical Inference	8.1-2
15		8.3
17		8.4
22	Fall Break: No class	
24	Thanksgiving: No class	
29		8.5
Dec. 1	Designing an Experiment & Sample Size Estimation	Handout
6	Choosing the Correct Statistical Test	Handout
TBA	**Final Exam**	**Cumulative (CLO 1-4)**

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Course Policies

Grading (credit) Criteria	All of your work is expected to be neat, clear, and legible, otherwise you may not get credit. Your homework shall be scanned or clearly photographed and uploaded to eLearning for grading by midnight on the assigned due date. Show all steps in your work; do not depend on partial credits, which will be solely at the discretion of the instructor. Examinations are designed to assess fundamental comprehension and understanding rather than short term retention. The accumulated weighted points from homework, participation, and tests establish a rank ordering of students within the section to which grades are assigned. The weighting of the cumulative raw point totals is by: Homework 15% In-Class Clicker Questions 10% (participation only) Midterm Exam I 20% Midterm Exam II 20% Midterm Exam III 20% (lowest Midterm Exam score will be dropped) Final Exam 35%
Make-up Exams	No make-up exams will be administered except in cases of excused absences. Any excusal from a regularly scheduled test or assignment must comply with the policies of the University for excused absences. In particular the student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for absence. Except in the case that the student seeks an excusal for religious holy days (*http://go.utdallas.edu/syllabus-policies*), if the absence is foreseeable, this evidence will be provided and acknowledged by the instructor ahead of the excused absence. In the case of an emergency absence, the student will provide satisfactory evidence to the instructor within three days for the absence to be considered for excusal by the instructor on an individual case basis. ODA tests will be administered two hours prior to the scheduled test time.
Late Work	All assignments will be due by midnight on the due date assigned in eLearning. Late work will be assigned a 20% penalty if submitted to eLearning within 24 hours after the assigned due date. Assignments submitted after this time will not be accepted except in cases of university excused absences.
Class Attendance	Attendance will be recorded through in-class polling participation (in-class clicker questions).
Classroom Citizenship	Please be respectful to your classmates by minimizing disturbances. Class time is prescheduled and should be considered to be analogous to a business meeting.
Comet Creed	*This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:* *"As a Comet, I pledge honesty, integrity, and service in all that I do."*
UT Dallas Syllabus Policies and Procedures	*The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.* *Please go to http://go.utdallas.edu/syllabus-policies for these policies.*

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