



IE 211.001 Engineering Probability and Statistics
Course Syllabus: Spring 2013
MW 3:00-4:15PM AG/IT 253 and 211

Instructor: Wen-Hsing Liu, Ph.D.
Ad-Interim Assistant Professor
Department of Engineering & Technology

Office Location: Charles J. Austin Industrial Engineering & Technology Building, Room 216 (AG/IT 216)

Office Hours: MW 4:15-5:00PM, TR 1:00-2:45PM or by appointment

Office Phone: 903-886-5471

Email Address: WenHsing.Liu@tamuc.edu

COURSE INFORMATION

Class Meeting Time and Room:

MW 3:00-4:15PM AG/IT 253 and 211

Course Text:

Montgomery, Douglas C. and Runger, George C. (2011). *Applied Statistics and Probability for Engineers*, Fifth Edition. John Wiley and Sons, Inc. (ISBN: 978-0-470-05304-1)

Course Description:

This course covers the role of statistics in engineering, probability, discrete random variables and probability distributions, continuous random variables and probability distributions, joint probability distributions, random sampling and data description, point estimation of parameters, statistical intervals for a single sample, and tests of hypotheses for a single sample.

Prerequisite: Math 192-Calculus II (Undergraduate Catalog 2012-2013)

Student Learning Outcomes:

After successfully completing the course, students should be able to do the following:

1. Use statistical methodology and tools in the engineering problem-solving process.
2. Compute and interpret descriptive statistics using numerical and graphical techniques.
3. Understand the basic concepts of probability, random variables, probability distribution, and joint probability distribution.
4. Compute point estimation of parameters, explain sampling distributions, and understand the central limit theorem.
5. Construct confidence intervals on parameters for a single sample.

Course Website: Class handouts, homework problems, and other relevant course materials will be posted on the eCollege course website. Students are expected to check the course website before every class for new information. To access the course website, login in to "myLEO", select "eCollege", and select "My courses".

COURSE REQUIREMENTS

This course will be presented by using lectures, in-class exercises, and discussions. Student learning outcomes will be evaluated based on quizzes and exams.

1. There will be three mid-term exams and one final exam (see course schedule). All exams are open book and closed notes. Using any other resources during exams is not allowed. Students are allowed to bring a calculator during exams. There will be no make-up exams except in the cases noted below (see fourth bullet point).
2. There will be 10 quizzes (see course schedule). You are allowed to drop one of 10 quiz scores. Therefore, the quiz portion of your grade will be 35% of your course grade and will be calculated using the average of your best nine quiz scores (each quiz is equally weighted). There will be no make-up quizzes except in the cases noted below (see fourth bullet point).
3. Homework problems for each chapter will be assigned but will not be collected or graded. Therefore, students are encouraged to discuss and work together on the homework problems. Completing the homework problems is definitely an excellent way to prepare for the quizzes and exams.
4. No make-up exams and quizzes will be permitted unless official documentation for absences is provided. All documented absences due to religious observances and officially approved trips will be guaranteed as a make-up opportunity. Absences due to other unavoidable reasons (e.g., death in the family, illness) will be considered on a case-by-case basis, with appropriate documentation required. Except in the case of an emergency, the student must **always** seek instructor consent **prior to** the absence. Typically, make-up exams and quizzes might occur before the scheduled absence and as close to the original assignment date as possible. Generally, students who miss quizzes for officially documented absences may either elect to take a make-up quiz or use grade replacement with the next quiz.

Grading:

The **final course grade** will be calculated based on the following:

Quizzes	35%
Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Exam	20%

The grading scale is as follows:

90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
Below 60	F

TECHNOLOGY REQUIREMENTS

The following technologies will be required for this course.

- A scientific calculator
- Internet access to the course website
- Minitab (available to students in the computer lab)

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures:

1. Students are expected to attend all class periods and be fully prepared for each class.
2. While in class, please turn off your cell phone, iPods, and other music devices.
3. Students are responsible for downloading class handouts and assignments from the course website.
The instructor will not bring paper copies of class handouts to class.
4. I reserve the right to make changes to this syllabus as needed.

Academic Dishonesty

Texas A&M University-Commerce will not condone plagiarism in any form. Plagiarism represents disregard for academic standards and is strictly against University policy. Plagiarized work can result in a "0" on a given assignment(s) or an "F" for the course as well as further administrative sanctions permitted under University policy. You may discuss course work and other course materials with fellow students (except during tests), but it is inappropriate to have another student do your course work or provide you with any portion of it.

University Specific Procedures:

ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamu-commerce.edu

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See *Code of Student Conduct from Student Guide Handbook*).

COURSE OUTLINE / CALENDAR

Topics (Course Content):

The Role of Statistics in Engineering (Chapter 1)
Descriptive Statistics (Chapter 6)
Probability (Chapter 2)
Discrete Random Variables and Probability Distributions (Chapter 3)
Continuous Random Variables and Probability Distributions (Chapter 4)
Joint Probability Distribution (Chapter 5)
Sampling Distributions and Point Estimation of Parameters (Chapter 7)
Statistical Interval for a Single sample (Chapter 8)

IE 211 Class Schedule – Spring 2013

Week	Date	Topics	Reading	Assignments
Week 1	M Jan 14	Course Introduction	Ch1	
	W Jan 16	The Role of Statistics in the Engineering Problem-Solving Process	Ch1	
Week 2	M Jan 21	MLK Holiday – No Class		
	W Jan 23	Descriptive Statistics - Numerical Methods	Ch6	Quiz 1
Week 3	M Jan 28	Descriptive Statistics - Graphical Methods	Ch6	
	W Jan 30	Probability	Ch2	Quiz 2
Week 4	M Feb 4	Probability, Cont.	Ch2	
	W Feb 6	Probability, Cont.	Ch2	Quiz 3
Week 5	M Feb 11	Exam 1		Exam 1
	W Feb 13	Bayes' Theorem and Random Variables	Ch2	
Week 6	M Feb 18	Discrete Random Variables and Probability Distributions	Ch3	
	W Feb 20	Discrete Random Variables and Probability Distributions, Cont.	Ch3	Quiz 4
Week 7	M Feb 25	Discrete Probability Distribution, Cont.	Ch3	
	W Feb 27	Discrete Probability Distribution, Cont.	Ch3	Quiz 5
Week 8	M Mar 4	Discrete Probability Distribution, Cont.	Ch3	
	W Mar 6	Exam 2		Exam2
	Mar 11 -15	Spring Break – No Class		
Week 9	M Mar 18	Continuous Random Variables and Probability Distributions	Ch4	
	W Mar 20	Continuous Random Variables and Probability Distributions, Cont.	Ch4	Quiz 6
Week 10	M Mar 25	Continuous Probability Distributions, Cont.	Ch4	
	W Mar 27	Continuous Probability Distributions, Cont.	Ch4	Quiz 7
Week 11	M April 1	Continuous Probability Distributions, Cont.	Ch4	
	W April 3	Joint Probability Distribution	Ch5	Quiz 8
Week 12	M April 8	Joint Probability Distribution, Cont.	Ch5	
	W April 10	Exam 3		Exam 3
Week 13	M April 15	Sampling Distributions and Point Estimation	Ch7	
	W April 17	The Central Limit Theorem	Ch7	Quiz 9
Week 14	M April 22	Confidence Interval, Variance Known	Ch8	
	W April 24	Confidence Interval, Variance Unknown	Ch8	
Week 15	M April 29	Confidence Interval of a Normal Distribution	Ch8	Quiz 10
	W May 1	Class Wrap UP		
Final	F May 10	Final Exam: 1:15-3:15PM		Final Exam

Exam Schedule:

Exam 1: Monday February 11

Exam 2: Wednesday, March 6

Exam 3: Wednesday, April 10

Final Exam: Friday, May 10, 1:15-3:15PM