IE 311 – Advanced Engineering Statistics
Course Syllabus: Fall 2014
MW 1:00 – 2:15 PM, AGIT 211

Instructor: Dr. Andrea Graham
Assistant Professor
Department of Engineering & Technology

Office Location: Charles J. Austin Engineering & Technology Building, Room 216

Office Hours: TR 11-1:30pm, W 11:00am – 12:00pm or by appointment

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COURSE INFORMATION

Course Description:
This course examines model building, design of experiments, multiple regression, non-parametric techniques, contingency tables and introduction to response surfaces, decision theory and time series data. Course Prerequisite: IE 211

Student Learning Outcomes:
1. Demonstrate understanding of hypotheses testing for a single sample.
2. Recognize and conduct statistical inference for two samples to solve engineering problems.
3. Perform linear and multiple linear regression analyses.
4. Demonstrate ability to design and analysis of single-factor experiments.
5. Demonstrate ability to do design of experiments with several factors.

Materials – Textbooks, Readings, Supplementary Readings:

Textbook Required: Applied Statistics and Probability for Engineers
Douglas C. Montgomery and George C. Runger / 5th edition.
Publisher: John Wiley & Sons, Inc.
ISBN- 978-0-470-05304-1

COURSE REQUIREMENTS

Attendance Policy

Every student is expected to attend all classes to acquire the information and knowledge covered in the class. Students themselves are responsible to obtain the materials covered in the classes they have missed. No effort will be made by the instructor to track down missing students and/or assignments.

Instructional / Methods / Activities Assessments

This course utilizes lectures, assignments (in class and out of class) to assist students in achieving the course learning outcomes. The assessment criteria for the stated student learning outcomes will include assignments, quizzes, exams, and a final exam.

1. There will be two semester exams and one final exam (see course schedule). The exam format will be announced prior the examination date. Students are allowed to bring a calculator during exams. There will be no make-up exams except in the cases noted below (see item #5)

2. There will be announced and unannounced quizzes. There will be no make-up quizzes except in the cases noted below (see item #5).

3. Homework problems for each chapter will be assigned and are due one (1) week later prior to the start of class. Late homework will be given a grade on "0".

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 based upon the following:

Assignments/Quizzes	20%
Exam 1	20%
Exam 2	20%
Exam 3	20%
Final Exam	20%

Grading Scale:

A = 90% and above
B = 80% - 89%
C = 70% - 79%
D = 60% - 69%
F = >60%

TECHNOLOGY REQUIREMENTS

The following technologies will be required for this class.

- A scientific calculator for exams (one with built-in statistical functions).
- Internet access to download class notes, assignments, and readings from the course Web site.
- We will be using statistical computer software for assignments. The software will be freely available for students in the computer labs on campus.

ACCESS AND NAVIGATION

This course will utilize eCollege to share documents related to the class such as syllabus, handouts/class notes, assignments, and solutions to the homework/exams. It is the student's responsibility to check the course Web site before every class for updated information. The course web site can be logged in through "myLEO". Log in to "myLEO", select "eCollege", and select "My Courses" (the Web site for this course will have a link on this page).

You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamuc.edu.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures:

1. Each exam will be given in class. Students will need a scientific calculator for exams. Use of unauthorized aids on exams will result in a grade of zero.
2. Homework must be turned in at the beginning of the class on the day it is due. Late assignments will not be accepted.
3. As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

Academic Dishonesty

Texas A&M University-Commerce will not allow plagiarism in any form. The students' course works should be their own. Plagiarism represents disregard for academic standards and is strictly against University policy. If you have a question regarding academic dishonesty and integrity, please talk to the instructor or refer to the *Code* of Student Conduct from Student Guide Handbook.

University Specific Procedures:

Students with Disabilities:

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
Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu

COURSE OUTLINE/CALENDAR

The following schedule is subject to change

WEEK	DATES	TOPICS	ASSIGNMENTS
Aug 25		-First day of class: Review of syllabus, course expectations	
Week 1	8/25, 8/27	-Hypothesis testing for a single sample	- Read Ch 9 - Assignment 1
Sept 1	9/1	- Labor Day – University Closed.	
Week 2	9/3	- Hypothesis testing for a single sample	- Read Ch 9 - Assignment 2
Week 3	9/8, 9/10	- Hypothesis testing for a single sample	- Read Ch 9 - Assignment 3
Week 4	9/15, 9/17	- Hypothesis testing for a single sample - Statistical inference for two samples	- Read Ch 10 - Assignment 4
Week 5	9/22, **9/24**	- Statistical inference for two samples **- Exam 1**	- Read Ch 10 - Assignment 5
Week 6	9/29, 10/1	- Statistical inference for two samples	- Read Ch 10 - Assignment 6
Week 7	10/6, 10/8	- Simple linear regression and correlation	- Read Ch 11 - Assignment 7
Week 8	10/13, 10/15	- Simple linear regression and correlation	- Read Ch 11 - Assignment 8
Week 9	10/20, **10/22**	- Simple linear regression and correlation **- Exam 2**	- Read Ch 11 - Assignment 9
Week 10	10/27, 10/29	- Multiple linear regression	- Read Ch 12 - Assignment 10
Week 11	11/3, 11/5	- Multiple linear regression	- Read Ch 12 - Assignment 11
Week 12	11/10, 11/12	- Multiple linear regression	- Read Ch 13 - Assignment 12
Week 13	11/17, **11/19**	- Design and analysis of single-factor experiments: The analysis of variance **- Exam 3**	- Read Ch 13 - Assignment 13
Week 14	11/24, 11/26	- Design and analysis of single-factor experiments: The analysis of variance	- Read Ch 14 - Assignment 14
Nov 27& 28		- Thanksgiving Break – University Closed	
Week 15	12/2, 12/4	- Design of experiments with several factors	- Read Ch 14 - Assignment 15
Dec 5		- Last day of class.	
Week 16	12/10	**- Final Exam (1:15-3:15pm)**	