IE 311.01E ADVANCED ENGINEERING STATISTICS
COURSE SYLLABUS: FALL 2012
MWF 11:00am – 11:50am, AGIT 211

Instructor: Dr. Pelin Altintas-deLeon
Assistant Professor
Department of Engineering & Technology

Office Location: Charles J. Austin Engineering & Technology Building, Room 215
Office Hours: MWF 9:00am – 10:00am
TR 1:00pm – 2:00pm or by appointment
Office Phone: (903) 468-8117
Office Fax: (903) 886-5960 (Inform instructor when a fax is sent)
University Email Address: pelin.altintas-deleon@tamuc.edu

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings:

Textbook Required: Applied Statistics and Probability for Engineers
Publisher: John Wiley & Sons, Inc.
ISBN- 978-0-470-05304-1

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.

COURSE REQUIREMENTS

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, exams, and a final exam.
Assignments: 20% of total course grade
Student learning outcomes #1, #2, #3, #4, #5,
Problems will be assigned to support the instructional material (either in-class assignment or homework assignment). Students will have an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. Students will have an ability to communicate effectively.

Exams and final exam: 80% of total course grade
Student learning outcomes #1, #2, #3, #4, #5
Students will have an ability to apply statistical principles to analyze and interpret data.
Exams will be used to assess a student's knowledge and skills related to applied statistics to solve engineering problems.

Grading

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<th>Final Grade:</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>20%</td>
<td>A</td>
<td>90 – 100</td>
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<tr>
<td>Exam 2</td>
<td>20%</td>
<td>B</td>
<td>80 – 89</td>
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<tr>
<td>Exam 3</td>
<td>20%</td>
<td>C</td>
<td>70 – 79</td>
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<tr>
<td>Assignments</td>
<td>20%</td>
<td>D</td>
<td>60 - 69</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
<td>F</td>
<td>Below 60</td>
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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 website 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. Exams are open book and closed notes. The Final Exam is comprehensive. Students will need a scientific calculator for exams. Use of unauthorized aids on exams will result in a grade of zero.
2. Late assignment is not accepted.
3. I reserve the right to make changes to this syllabus as needed. The changes will be announced in class.

**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:**

*ADA Statement*

**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

**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).

Students are expected to attend all class periods and to be prepared for each class. Students are expected to refrain from any disruptive behaviors during class, which includes but is not limited to working on assignments/projects from another course, reading non-course materials, or using the computer for non-class purposes. Cell phones, iPods, and other electronic devices should be turned off during class.
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 27</td>
<td>8/27, 8/29, 8/31</td>
<td>- First day of class.</td>
<td>- Read Ch. 9 - Assignment 1</td>
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<tr>
<td>Week 1</td>
<td>9/5, 9/7</td>
<td>- Hypothesis testing for a single sample.</td>
<td>- Read Ch. 9 - Assignment 2</td>
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<tr>
<td>Sept 3</td>
<td>9/10, 9/12, 9/14</td>
<td>- Hypothesis testing for a single sample.</td>
<td>- Read Ch. 9 - Assignment 3</td>
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<td>Week 3</td>
<td>9/17, 9/19, 9/21</td>
<td>- Statistical inference for two samples.</td>
<td>- Read Ch. 10 - Assignment 4</td>
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<td>Week 4</td>
<td>9/24, 9/26, 9/28</td>
<td>- Statistical inference for two samples.</td>
<td>- Read Ch. 10 - Assignment 5</td>
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<td>Week 5</td>
<td>10/1, 10/3, 10/5</td>
<td>- Statistical inference for two samples.</td>
<td>- Read Ch. 10 - Assignment 6</td>
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<td>Week 6</td>
<td>10/8, 10/10, 10/12</td>
<td>- Simple linear regression and correlation.</td>
<td>- Read Ch. 11 - Assignment 7</td>
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<td>Week 7</td>
<td>10/15, 10/17, 10/19</td>
<td>- Simple linear regression and correlation.</td>
<td>- Read Ch. 11 - Assignment 8</td>
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<td>Week 8</td>
<td>10/22, 10/24, 10/26</td>
<td>- Simple linear regression and correlation.</td>
<td>- Read Ch. 11 - Assignment 9</td>
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<td>Week 9</td>
<td>10/29, 10/31, 11/2</td>
<td>- Multiple linear regression.</td>
<td>- Read Ch. 12 - Assignment 10</td>
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<td>Week 10</td>
<td>11/5, 11/7, 11/9</td>
<td>- Multiple linear regression.</td>
<td>- Read Ch. 12 - Assignment 11</td>
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<td>Week 11</td>
<td>11/12, 11/14, 11/16</td>
<td>- Design and analysis of single-factor experiments: The analysis of variance.</td>
<td>- Read Ch. 13 - Assignment 12</td>
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<td>Week 12</td>
<td>11/19, 11/21</td>
<td>- Design and analysis of single-factor experiments: The analysis of variance.</td>
<td>- Read Ch. 13</td>
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<td>Nov 22 &amp; 23</td>
<td>Thanksgiving Break – University Closed.</td>
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<td>Week 13</td>
<td>11/26, 11/28, 11/30</td>
<td>- Design of experiments with several factors.</td>
<td>- Read Ch. 14 - Assignment 13</td>
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<td>Week 14</td>
<td>12/3, 12/5, 12/7</td>
<td>- Design of experiments with several factors.</td>
<td>- Read Ch. 14 - Assignment 14</td>
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<td>Dec 7</td>
<td>- Last day of class.</td>
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<td>Week 16</td>
<td>- Final Exam.</td>
<td>- Final grading.</td>
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