STA 327 Class Policy

2017 / Fall
STA 327.001
Statistical Modeling

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Phone: 468-6263
Office: 350 NM
Office Hours: 9-11 MW and 9-10 on F, or by appointment.
Class meeting time and place: 11-12:15 on TuTh, Mathematics 357

Course Description:
Analysis of variance, single factor completely randomized designs, blocking and Latin square designs. Multifactor experiments including factorial experiments, nested, blocked and splitplot designs, analysis of covariance. Quality control, acceptance sampling, reliability issues. SAS or other statistical software used throughout. Report writing, data driven problems and/or case studies incorporated throughout

Program Learning Outcomes:
There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and/or a service course.

Student Learning Outcomes:
At the end of STA 322, a student who has studied and learned the material should be able to:

1. Distinguish between CR and RCB designs. [EEO: 1,6]
2. Plan and analyze CR, RCB and other statistical experiments. [EEO: 1, 2, 4, 5]
3. Compare and contrast popular multiple comparison techniques for experiments. [EEO: 1, 5, 6]
4. Explain the nature of factorial treatment structure and know how to properly assess interaction effects in statistical models. [EEO: 1, 2, 5]
5. Distinguish nested from crossed factors and analyze data resulting from experiments that contain each type of factor. [EEO: 1, 2, 5, 6]
6. Plan and analyze repeated measures and split-plot experiments. [EEO: 1, 2, 4, 5]
7. Distinguish analysis of variance from analysis of covariance situations in nature. [EEO: 1, 2, 4, 5, 6]
8. Recognize physical scenarios which are matched to the experiments discussed throughout the course. [EEO: 1, 7]
9. Write both statistical reports and brief summaries for client usage. [EEO: 3, 7]
10. Demonstrate a basic understanding of the client/consultant relationship during consulting meetings. [EEO: 3, 7]

Text and Materials:
Design and Analysis of Experiments by Montgomery.

Course Requirements:
Homework, Quizzes, Project(s), and Exams
Course Calendar:
Course outline: Approximate time spent

Single Factor Experiments 35%
  o Completely Randomized Designs (CR)
  o Multiple Comparison Procedures
  o Randomized Complete Block Designs (RCB)
  o Latin Square Designs
  o Unbalanced and Incomplete Structures in Designs

Multi-Factor Experiments 35%
  o Factorial Treatment Structure in a CR Design
    ♣ Interaction Assessment
  o Factorial Treatment Structure in a RCB Design
    ♣ Interaction Assessment
  o Nested Treatment Structures
  o Repeated Measures Designs
  o Split-Plot Designs
  o Covariance (Analysis of)

Special Topics 10%
  o Quality Control
    ♣ Control Charts for Attributes
    ♣ Control Charts for Variables
  o Acceptance Sampling and General Sampling Theory
  o Reliability in Industrial Settings

Statistical Consulting/Report Writing* 20%*
  o The Consultant/Client Relationship
  o Writing a Statistical Report
  o Statistical Computing and Software Usage
  o Presenting (Written and Oral) Statistical Reports

*Incorporated throughout the previous three "bullets" as opposed to a stand-alone subject or unit.

Grading Policy: The final average will be computed using the following weights:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Homework/Projects</td>
<td>40%</td>
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<tr>
<td>Exams I-II</td>
<td>40%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
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</tbody>
</table>

Attendance Policy:
Attendance/participation is expected.

Academic Integrity (A-9.1):
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.
Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54):
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

Students with Disabilities:
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Acceptable Student Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.
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<thead>
<tr>
<th>#</th>
<th>Week of</th>
<th>Topic(s)</th>
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<tbody>
<tr>
<td>1</td>
<td>August 28</td>
<td>Inference Review</td>
</tr>
<tr>
<td>2</td>
<td>September 4</td>
<td>One-Way ANOVA (Model and Sums of Squares)</td>
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<td>3</td>
<td>September 11</td>
<td>One-Way ANOVA (Model Validation)</td>
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<td>4</td>
<td>September 18</td>
<td>One-Way ANOVA (Multiple Comparisons)</td>
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<td>5</td>
<td>September 25</td>
<td>Project Presentations</td>
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<tr>
<td>6</td>
<td>October 2</td>
<td>Blocking (Randomized Complete)</td>
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<td>7</td>
<td>October 9</td>
<td>Blocking / Catch Up</td>
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<td>8</td>
<td>October 16</td>
<td>Factorial Designs</td>
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<td>9</td>
<td>October 23</td>
<td>Factorial Designs (With Mixed Models)</td>
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<td>10</td>
<td>October 30</td>
<td>Project Presentations</td>
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<td>11</td>
<td>November 6</td>
<td>Nested Designs</td>
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<td>12</td>
<td>November 13</td>
<td>Split-Plot Designs</td>
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<td>13</td>
<td>November 20</td>
<td>Thanksgiving Holiday</td>
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<td>14</td>
<td>November 27</td>
<td>Quality Control</td>
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<tr>
<td>15</td>
<td>December 4</td>
<td>Project Presentations</td>
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<tr>
<td>16</td>
<td>December 11</td>
<td>Comprehensive Final December 14, 10:30-12:30 a.m.</td>
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