Department of Mathematics and Statistics  
STAT 3342.001—Statistical Methods  
Fall 2021

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Phone: 936-468-1692  
Office: 342 Bush Mathematical Science Building  
Office Hours:

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tr>
<td>10:00am-12:00pm</td>
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<td>10:00am-12:00pm</td>
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<td>3:30pm-4:30pm</td>
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You can also meet with me by appointment.

Class meeting time and place:  Tue/Thur  9:30-10:45pm    Mathematics Room 213

Course Description:  Probability, random variables, mean and variance, binomial distribution, normal distribution, statistical inference and linear regression.

Text and Materials
2.  R Studio statistical software (free online)

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

- **HW 25%**  
  - HW will be assigned regularly
- **Projects 25%**  
  - Data Analysis Presentations and/or Cheat Sheet Work
- **Midterm and Final exam 25% each**  
  - Conceptual questions timed during lecture  
  - Analysis portion given as take home

**Homework and Group Exercises:**  HW assignments will be provided through D2L. It will be labeled as a “quiz” but this where they will be located. You may complete them inside of D2L or submit a hard copy in person on the due date which will be typically one week after it is assigned depending on the length. Some could be due within a shorter period of time, some longer.

**Exams (TBD):**  The midterm will consist of two parts (“in-class” and “take-home”). The in-class portion will be conducted via D2L using a timed quiz and will be scheduled to start during our normal meeting time. This part will be short and sweet and will mainly cover key terms/definitions, key conceptual ideas and facts, providing criticisms, and
general decision making processes. We’ll have a review to help get you prepared. The take home portion will be all about you showing your statistical analysis chops on a few open scenarios. The key to success here is to show that you can identify which statistical tool is needed to answer the research question, perform the analysis in R software, and write a thorough conclusion.

There are no make-ups for missed exams, so make every effort to be at class on exam day. If you know ahead of time that you will miss an exam, see me at least one class before the scheduled exam and we will work something out. Department policy requires that you bring and be recognizable from either your SFASU Student ID or another valid photo ID before you are permitted to take each exam. If you need accommodations, I would appreciate a verbal reminder as we get close to test time.

**Final Exam (Dec 9th 10:30 – 12:30pm):** The final exam for this course will follow the same format as the midterm with the only difference that there will be more statistical methods to consider on the take home portion. I will most likely be leaning more towards the later material, but we can’t really forget anything as we move throughout the course.

**Projects:** A study, along with data from the study will be provided. Groups of students will have to decide the most appropriate analysis to use, perform it, and present their results in a presentation. The cheat sheet project is a written project where groups of students develop and “guide and helpful tips” about the methods covered in the course. The point is to provide a readable reference document that students can use to remind themselves when statistics is needed in their job or a simple reference before tackling more advanced coursework.

**Grading Scale (100%):** A: 90-100, B: 80-90, C: 70-80, D: 60-70, F: Below 60

**Attendance Policy**
Attendance is expected and will be reflected in everything you submit. It will be increasingly difficult to get a good grade or even pass if you miss class regularly. When a student misses class, s/he is expected to proactively and promptly acquire the missed information before the next calendar class day and meet all requirements administered by the instructor and the student must: Submit an official, dated note from attending doctor, parent, or supervisor, depending on the nature of the absence. Documentation must be submitted promptly.

The following is an excerpt from SFA Policy 5.4:

*The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:*
1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;

2. At least an equivalent amount of work as outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

To this end, all students in courses offered by the Department of Mathematics and Statistics that wish to be successful should plan to spend a minimum of two hours outside of class for every credit hour associated with this course. Expected activities to be completed in the time outside of class include reviewing notes from previous class meetings, reading assigned course resources, completing all assigned exercises and projects, and performing periodic assessment preparation.

For additional information the is common across all sections of this course, please refer to http://www2.sfasu.edu/math/docs/syllabi/STAT3342Syllabus.pdf.
STAT 3342–Statistical Methods
Course Syllabus

Course description: Analysis of variance, regression analysis and nonparametric methods. The course will stress the use of computer packages MINITAB or SAS and the interpretation of the outputs.

Credit hours: 3

The following is an excerpt from SFA Policy 5.4:

*The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:*

1. **Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;**

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Course Prerequisite and Corequisites: MATH 1342.

Course outline:

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<tr>
<th>Course outline</th>
<th>Approximate time spent</th>
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<tr>
<td>Review of Probability &amp; Basic Inference</td>
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<tr>
<td>- Probability and Sampling Distributions</td>
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<td>- Confidence intervals and hypothesis testing</td>
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<tr>
<td>- Introduction to MINITAB and/or SAS</td>
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<td>- Inferences for a Single Population</td>
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<td>- Inferences for two populations</td>
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<td>Analysis of Variance</td>
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<td>- One way completely randomized design</td>
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<td>- Multiple Comparisons</td>
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<td>- Randomized Block Design</td>
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<td>- Factorial Designs</td>
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<tr>
<td>Regression Analysis</td>
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<td>- Linear Regression</td>
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<td>- Multiple Regression</td>
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<td>Nonparametric Methods</td>
<td>20%</td>
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<tr>
<td>- One sample</td>
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<td>- Two Independent Samples</td>
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<td>- More than two samples</td>
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<tr>
<td>- Randomized block design</td>
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<td>- Rank correlation</td>
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**Student Learning Outcomes (SLO):** At the end of STAT 3320, a student who has studied and learned the material should be able to:

1. Demonstrate understanding of sampling distributions and their role in statistical analysis. 
   
   [EEO: 3, 5, 6]

2. Recognize experiments designed according to criteria listed in course outline. 
   
   [EEO: 1, 2, 3]

3. Analyze data sets generated from experiments designed according to criteria listed in course outline with or without the aid of a computer. 
   
   [EEO: 1, 4, 6]

4. Report results of statistical analysis of data generated from experiments designed as according to criteria listed in course outline. 
   
   [EEO: 2]

*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*

**Exemplary Educational Objectives (EEO):**

1. To apply arithmetic, algebraic, geometric, higher-order thinking, and statistical methods to modeling and solving real-world situations.

2. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.

3. To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.

4. To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.

5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.

6. To recognize the limitations of mathematical and statistical models.

**Academic Integrity**

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.

The penalty for a student found cheating on any part of an assignment, quiz, or exam in this class will range from a grade of zero on the work to a grade of F in the course, and may result in additional, more severe disciplinary measures. A student who allows another to copy his work and the student copying the work are both guilty of cheating. Do your own work. Do not show your completed work to others. Do not allow others to copy your work.

**Definition of Academic Dishonesty (SFA policy 4.1):**

Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:

- using or attempting to use unauthorized materials on any class assignment or exam;
- falsifying or inventing of any information, including citations, on an assignment;
- helping or attempting to help other student(s) in an act of cheating or plagiarism.

Plagiarism is presenting the words or ideas of another person as if they were one’s own. Examples of plagiarism include, but are not limited to:

- submitting an assignment as one's own work when it is at least partly the work of another person;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source;
- incorporating the words or ideas of an author into one's paper or presentation without giving the author credit.

**Withheld Grades Semester Grades (SFA Policy 5.5)**

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.

www.sfasu.edu
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](http://www.sfasu.edu/disabilityservices).

**SFASU Mental Health Statement:** SFASU values students’ mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support students mental health and wellness. Many of these resources are free, and all of them are confidential.

**On-campus Resources:**
SFASU Counseling Services
[www.sfasu.edu/counselingservices](http://www.sfasu.edu/counselingservices)
3rd Floor Rusk Building
936-468-2401

SFASU Human Services Counseling Clinic
[www.sfasu.edu/humanservices/139.asp](http://www.sfasu.edu/humanservices/139.asp)
Human Services Room 202
936-468-1041

**Crisis Resources:**
Burke 24-hour crisis line 1(800) 392-8343
Suicide Prevention Lifeline 1(800) 273-TALK (8255)
Crisis Text Line: Text HELLO to 741-741

**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 10.4](#)). 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.

*Date of document: 08/17/2021*