Introduction to Probability and Statistics

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Phone: 936-468-1692
Office: 342 NM
Office Hours:

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<th>Monday</th>
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<th>Wednesday</th>
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Class meeting time and place: 9’00 am – 9:50 am, MWF, Mathematics 204

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

Text and Materials:

The Case Study Manual Freely available in D2L
TI-83/84 Calculator


Course Requirements:

Homework, In Class Exercises, Exams, and Final Exam

Course Calendar:

Course outline: Approximate time spent

• Descriptive Statistics 10%
  o Graphical Display of Data
  o Measures of location
  o Measures of Dispersion

• Probability Distributions 20%
  o Random Variables
  o Discrete Distributions
    □ Binomial Distribution
  o Continuous Distributions
    □ Normal Distribution

• Sampling Distributions 10%
  o Random Samples
  o Central Limit Theorem

• Statistical Inference 40%
  o Estimation
    □ Point Estimation
    □ Interval Estimation
Grading Policy: The final average will be computed using the following weights:

- HW and Group Exercises 10% 
  - Due on almost every Friday before class begins.
- Two midterm exams 50%
  - 1 may be replaced by your final exam
  - Given in Lecture Sections
- Project 10% (In class group presentation, 2-3 member groups)
- Final exam 30%
  - Mandatory and comprehensive
  - Cannot be dropped

Homework and Group Exercises (Due on almost every Friday before class begins)
HW assignments will be provided through D2L. Students will submit their HW in class on the appropriate due date. In addition to regular HW, additional group exercises in class will be conducted as well as a few quizzes. Participation is required for these additional assignments, so if you miss class that day, then you will not receive credit for the assignment that day.

Exams (Tentatively Feb 26, April 9)
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.

Final Exam
The final exam is comprehensive and counts 25% toward the final grade. The final exam schedule is Wednesday, May 9, 8:00am-10:00am.

Project (TBD)
You can select any topic as long as it is related inferential procedures. That is, you have to use both hypothesis testing and confidence interval methods to answer appropriate questions related to the population (s) of the selected project. You have to inform me what you are going to do to make sure you are on the right track (get my approval). Projects can be completed in groups of 2-3 class members and all members must participate in all project activities including the final class presentation. A portion of your grade will be based on peer evaluation from the other members of your group.

Grading Scale:

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<th>Letter Grade</th>
<th>% Scale</th>
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<tr>
<td>A</td>
<td>90-100</td>
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<td>B</td>
<td>80-89</td>
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<td>C</td>
<td>70-79</td>
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<td>D</td>
<td>60-69</td>
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<td>F</td>
<td>below 59</td>
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Core Objectives (CO):
1. **Critical Thinking [CO 1]**: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication Skills [CO 2]**: to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. **Empirical and Quantitative Skills [CO 3]**: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

**Expectations and Class Rules:**
I expect you to come to class ready and prepared. This includes keeping up to date with reading the case study manual, completion of all HWs, active participation during class room exercises, and studying the material regularly. Given that this course is TR, it is imperative that you study the material at least 2 or 3 times between Thursday and the following Tuesday.

ALL cell phones are to be turned OFF and put away. If someone violates this rule (texting, playing games, etc.), then the person must leave the class room for that class period without any further delay according to the professor’s instructions. No food in the classroom. Don’t leave the classroom in the middle of the lecture.

**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.

**Academic Integrity (Policy 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.

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**
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](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](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 [http://www.sfasu.edu/policies/student_conduct_code.asp](http://www.sfasu.edu/policies/student_conduct_code.asp)). 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.

**Program Learning Outcomes:**

This is a general education core curriculum course and no specific program learning outcomes for this major are addressed in this course.

**Student Learning Outcomes (SLO):** At the end of MTH 220, a student who has studied and learned the material should be able to:

1. Exhibit an understanding of basic probability rules and concepts  [CO:1,3]
2. Demonstrate an understanding of different probability models and ways they are used in statistical inference. [CO: 1, 2, 3]
3. Demonstrate an understanding of point estimation of population parameters. [PLO: 1,3]
4. Demonstrate an understanding of interval estimation about population parameters and inference that can be drawn from such techniques. [CO: 1,3]
5. Demonstrate an understanding of hypothesis testing concerning population parameters and inference that can be drawn from such techniques. [CO:1,3]