

**THE UNIVERSITY OF TEXAS AT EL PASO**  
**COLLEGE OF SCIENCE**  
**DEPARTMENT OF MATHEMATICAL SCIENCES**

Course #: 22166  
Course Title: STAT 2480: Elementary Statistical Methods  
Credit Hrs: 4  
Term: Spring 2020  
Course Meetings & Location: W: 10:30 AM-11:20AM (LAB); **Physical Science Building 218**  
TR: 10:30AM - 11:50AM LART 319  
Prerequisite Courses: One of 1320, 1508, 1411, TCCN 1314 or equivalent  
Course Fee: (if applicable) None  
Instructor: FRANCIS BINEY  
Office Location: Bell Hall \_215\_\_\_  
Contact Info: 9157477004  
E-mail address: fbiney@utep.edu  
Emergency Contact: 915-747-5761 (math dept office)  
Office Hrs: TWR: 12pm to 1pm  
Textbook, Required Materials: Available only on Macmillan website and Utep Bookstore

The Practice of Statistics in the Life Sciences, fourth  
edition, by Baldi and Moore, **ISBN-13: 978-1-319-01337-0**

Course Objectives (Learning Outcomes): The students are expected to go beyond mere statistical literacy. At the end of the course a student will have the necessary skills:  
To design a study for the collection of data that will answer a simple research question; To write out a plan for statistical analysis of data collected; To carry out a planned statistical analysis; and To provide a written report of the findings including a summary of ways the study could be improved; To read a scientific paper for the purpose of critiquing the strengths and weaknesses of the experimental design and the statistical analysis, and comment on the appropriateness of the conclusions based on the analysis presented.

Course Schedule: **February 5:** Spring Census Day. Last day to drop without a W.  
**April 3rd:** Course Drop Deadline  
**March 16 – 20<sup>th</sup> Spring Break**  
**May 11 – 15<sup>th</sup> :** Spring final: Thursday, May 14th 10:00 am – 12:45 pm

Activities and Assignments: Reading assignments, homework assignments, day-by-day class schedule with due dates, class-handouts, lab instructions, lab quizzes are all on BLACKBOARD.

Students will be expected to attend lecture and lab, read the book, practice the concepts by solving problems from the textbook assigned for homework, and complete a group project. The textbook problems will be supplemented with computer assignments requiring the use of statistical software Minitab available in the UTEP library, UGLC computer lab, and the ACES computer lab in Bell Hall. Statistical software instruction will be provided in the lab.

In-class group activities will be used to encourage active learning. Study groups to discuss the problems and brainstorm approaches to problem solving are encouraged, however, all graded assignments and computer programs turned in for grading are to be your own work and reflect your individual effort.

Grading Policy: You will be graded on homework, group work, in-class examinations, and the project. The course grade is based on:

20% Homework Assignments (due at the beginning of class)  
5% Pre-Lab ONLINE quizzes (completed before the lab meeting)  
5% Post-Lab quizzes (completed after the lab meeting)  
15% Exam I  
15% Exam II  
20% Cumulative Final Exam  
20% Project

Projects that are used (or have been used in the past) to satisfy the requirements of another course are not acceptable. For example, Field Biology projects may not be used to satisfy the project requirement of this class.

Calculators may not be shared on exams. Cell phone calculators are not permitted on exams.

Letter grades are determined according to the following scale:

Grade Score

A: (90-100); B: (80-89) ; C : (70-79); D: (60-69); F: <60

**If a student receives a grade of D or F, they may register for Winter-mester. A grade of 70% or better on the comprehensive Winter-mester exam will replace a failing course grade with a grade of C.**

- Make-up Policy: Late homework is not accepted. Make-up examinations will not be given. Students are required to take the two midterms and final exam at the scheduled times.
- Attendance Policy: Lecture and Lab attendance are required and noted at the beginning of class; Arriving 15 minutes late will be counted as an absence. More than a total of TWO unexcused absences (from lab plus lecture) will result in an instructor-initiated drop or final grade reduction.**
- Academic Integrity Policy: Violations of academic integrity, including unauthorized submission of work performed by others, will be pursued vigorously to result in the most severe sanctions. Please refer to UTEP's policy cited in <https://www.utep.edu/student-affairs/osccr/>
- Civility Statement: No text messaging in class. Please silence cell phones before coming to class. Students are expected to actively participate in class discussions and group activities. Group work that is not completed in class is to be finished as homework, so use the class time wisely by staying focused on the class topic and avoiding chit-chat.
- Disability Statement: If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website <https://www.utep.edu/student-affairs/cass/>
- Military Statement: If you are a military student with the potential of being called to military service and /or training during the course of the semester, you are encouraged to contact your instructor as soon as possible.

Week	Topic
1	<b>Lab: Importance of Random Sampling to Avoid Bias</b> Chapter 6 & 7: study Design: Experimental Design & Observational Study
2	<b>Lab: Random Assignment of Treatments to Avoid Confounding</b> Critically Evaluating an Article <b>Hmwk 1 (all online) due Jan. 30</b>
3	<b>Project Orientation (no online quiz)</b> Chapter 2: Numerical Data Summaries What does the mean mean? Standard deviation, 5 number summary Chapter 1 : Graphical Data Summaries: Boxplots, histograms, stem-and-leaf plots, empirical rule <b>Hmwk 2 (critically evaluating an article) due Feb. 6</b>
4	<b>Lab: Graphing Data on Qualitative and Quantitative Variables and Regression</b> Chapter 3 & 4: Correlation and Regression: Least Squares Regression Effect <b>Hmwk 3 (data summaries) due Feb. 13</b>
5	<b>Lab: Correlation and Regression</b> Review Chapters 1, 2, 3, 4, 6 & 7 <b>Hmwk 4 (correlation and regression) due Feb. 18 Tuesday</b> <b>Midterm I, Chapters 1, 2, 3, 4, 6 &amp; 7, February. 20 (Thursday)</b>
6	<b>Lab: Probability Lecture</b> Chapter 9: Probability: Definition of probability, Monty Hall game Chapter 9 & 10: Probability rules and conditional probability <b>Project Proposals due due Feb. 27</b>
7	<b>Lab: Probability Distributions (Questions 3–5)</b> Questions 1–4 from Lab 5: Probability Distributions (Binomial - Chapter 12) Chapter 11: Density Histogram for Continuous Random Variables: Penny Density Activity <b>Hmwk 5 (probability) due Mar. 5</b>
8	<b>Lab: Gaussian Distribution</b> Chapter 11: Probability Distributions: Gaussian Density Review, Chapters 9, 10, 11 & 12 <b>Revision of Project Proposals due Mar. 12</b>
	<b>SPRING BREAK March 16–20</b>
9	<b>Lab: Sampling Distribution of the Sample Mean</b> <b>Hmwk 6 (normal and binomial) due Mar. 24 Tuesday</b> Chapter 13: Sampling Distributions; Sampling Activities Definition of the sampling distributions of the sample mean and sample proportion; CLT <b>Midterm II, Chapters 9, 10, 11 &amp; 12, March 26 Thursday</b>
10	<b>Lab: Randomization Distribution</b> Problem session on sampling distribution of the sample mean Activity: Resampling - Randomization Distribution Chapters 14, 15 & 19: Hypothesis Testing Introduction: (testing proportions) <b>Hmwk 7 (sample mean) due Apr. 2</b>
	<b>Course Drop Deadline, April 3th</b>

Week	Topic
11	<p><b>Lab: Power calculations for the 1-sample <math>t</math>-test</b>            Chapter 17: Hypothesis testing for means            Chapter 17: Confidence Intervals for the mean: Duality between CI and hypothesis testing  <b>Hmwk 8 (hypothesis testing for population proportions) due Apr. 9</b></p>
12	<p><b>Lab: Confidence intervals for the mean of a population</b>            Chapter 5 &amp; 21: Chi-squared tests for categorical variables overview            M&amp;M candies used to teach goodness-of-fit test (Activity)            Chapter 22: Chi-squared tests for homogeneity of distribution            Monty Hall in Let's Make a Deal (Activity)  <b>Hmwk 9 (hypothesis testing for means, confidence intervals, power) due Apr. 16</b></p>
13	<p><b>Lab: Chi-squared tests for categorical variables</b>            Chapter 22: Chi-squared test for independence            Chapter 24: One-way analysis of variance  <b>Hmwk 10 (chi-squared tests) due Apr. 23</b></p>
14	<p><b>Lab: Analysis of Variance</b>            Chapter 24: One-way analysis of variance continued            Review for final exam which is cumulative with emphasis on Chapters 8-11.  <b>Hmwk ANOVA Extra credit due due Apr. 30</b></p>
15	<p><b>Lab: Project</b>  <b>Project due May 7th by 5pm on Black Board</b></p>
	Final Exam Cumulative - Chapters covered from 1 to 24 see syllabus for date and time