South Plains College
Math 1342 – Statistical Methods
Course Syllabus 2022 - 2023

Instructor: Danae Burton
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Course Description: Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing.

Prerequisite: Minimum score of 350 on the TSIA, TSI-exempt status, or a successful completion with a grade of 'C' or better in MATH 0337.

Credit: 3 Lecture: 3 Lab: 0

Textbook: In this course, we will utilize a free online textbook provided through openstax. The link to the textbook can be found here:
https://openstax.org/books/introductory-statistics/pages/preface
The book can also be found by going to openstax.com, finding the math books, then clicking on Introductory Statistics.

Supplies: Each student will need a graphing calculator (assigned by the school), two spiral notebooks (or one multi-subject notebook), a pen or pencil with which to take notes, and a folder to keep graded assignments and tests in.

Communication: The instructor can be reached through school email, or through our Google Classroom section.

Technology: Since students in a year-long dual credit class are not enrolled at SPC until the spring semester, this class will use Google Classroom to access all instructional materials.

Student Learning Outcomes: Upon completion of this course and receiving a passing grade, the student will be able to:

1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2. Recognize, examine and interpret the basic principles of describing and presenting data.
3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4. Explain the role of probability in statistics.

5. Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.
6. Describe and compute confidence intervals.
7. Solve linear regression and correlation problems.
8. Perform hypothesis testing using statistical methods.

Course grade: Each student's grade for **Levelland High School** will be calculated as follows:

Daily Work	10%
Assignments	20%
Quizzes	20%
Exams	40%
Final Project	10%

Each student's grade for **South Plains College** will be calculated as follows:

Fall 2022		
Unit Exams	2 @ 15 points each	30 points
Spring 2023		
Daily grades	15 points	15 points
Unit Exams	2 @ 20 points each	40 points
Final project	20 points	20 points
	Total:	115 points

Exams: We will have four in-class exams. Exams may have a combination of vocabulary words, multiple choice, and short response questions. Exams can be made up outside of class if missed due to excused absence or being sick.

Homework and class assignments: Homework is assigned from each section covered, and time will be available during class to ask questions. Consistently working problems reinforces the skills and concepts presented, and is essential for success in this course. Homework assignments will be due either two or three class days from the day they are assigned. Homework is due by 4pm on the due date. Late work will be deducted 10% each day it is late up to three days; after three days, the homework will receive a zero.

Course Calendar:

Week	Topics
1: Aug 17-19	Introduction to class 1.1: Definitions of Statistics, Probability, and Key Terms
2: Aug 22-26	1.2: Data, Sampling, and Variation in Data and Sampling 1.3: Frequency, Frequency Tables, and Levels of Measurement 1.4: Experimental Design and Ethics
3: Aug 29 - Sep 2	1.6: Sampling Experiment (In class lab assignment) 2.1: Stem-and-Leaf Graphs (Stemplots), Line Graphs, and Bar Graphs
4: Sep 5-9	**(No school Monday)** 2.2: Histograms, Frequency Polygons, and Time Series Graphs 2.3: Measures of the Location of the Data
5: Sep 12-16	2.4: Box Plots 2.5: Measures of the Center of the Data
6: Sep 19-23	2.6: Skewness and the Mean, Median, and Mode 2.7: Measures of the Spread of the Data 2.8: Descriptive Statistics (In class lab assignment)
7: Sep 26-30	**(No school Monday - student holiday)** 12.1: Linear Equations 12.2: Scatter Plots
8: Oct 3-7	12.3: The Regression Equation 12.4: Testing the Significance of the Correlation Coefficient
9: Oct 10-14	12.5: Prediction 12.6: Outliers **(No school Friday - Fall break)**
10: Oct 17-21	**(No school Monday - Fall break)** 12.9 Regression (Fuel Efficiency) (In class lab assign.) Review for Exam 1 Exam 1
11: Oct 24-28	3.1: Terminology 3.2: Independent and Mutually Exclusive Events 3.3: Two Basic Rules of Probability
12: Oct 31 - Nov 4	**(No school Monday - student holiday)** 3.4: Contingency Tables 3.5: Tree and Venn Diagrams

13: Nov 7-11	3.6: Probability Topics (In class lab assignment) 4.1: Probability Distribution Function (PDF) for a Discrete Random Variable
14: Nov 14-18	4.2: Mean or Expected Value and Standard Deviation 4.3: Binomial Distribution Review for Exam 2
15: Nov 21-25	No school - Thanksgiving break
16: Nov 28 - Dec 2	Review for Exam 2 Exam 2 5.1: Continuous Probability Functions
17: Dec 5-9	5.2: The Uniform Distribution 5.3: The Exponential Distribution
18: Dec 12-16	5.4: Continuous Distribution 6.1: The Standard Normal Distribution
	6.2: Using the Normal Distribution 6.3: Normal Distribution (Lap Times) (In class lab assignment)
19: Jan 2-6	**(No school Monday - student holiday)** 7.1: The Central Limit Theorem for Sample Means (Averages) 7.2: The Central Limit Theorem for Sums
20: Jan 9-13	7.3: Using the Central Limit Theorem 7.5: Central Limit Theorem (Cookie Recipes) (In class lab assignment) Chapter 7 Quiz
21: Jan 16-20	**(No school Monday - student holiday)** 8.1: A Single Population Mean using the Normal Distribution 8.2: A Single Population Mean using the Student t Distribution
22: Jan 23-27	8.3: A Population Proportion Chapter 8 Lab Chapter 8 Quiz
23: Jan 30 - Feb 3	Review for Exam 4 Exam 4 9.1: Null and Alternative Hypotheses
24: Feb 6-10	9.2: Outcomes and the Type I and Type II Errors 9.3: Distribution Needed for Hypothesis Testing
25: Feb 13-17	9.4: Rare Events, the Sample, Decision and Conclusion 9.5: Additional Information and Full Hypothesis Test Examples **(No school Friday - student holiday)**
26: Feb 20-24	**(No school Monday)** 9.6: Hypothesis Testing of a Single Mean and Single Proportion

	Chapter 9 Lab Chapter 9 Quiz
27: Feb 27 - Mar 3	10.1: Two Population Means with Unknown Standard Deviations 10.2: Two Population Means with Known Standard Deviations
28: Mar 6-10	10.3: Comparing Two Independent Population Proportions 10.4: Matched or Paired Samples
29: Mar 13-17	**No school - Spring Break**
30: Mar 20-24	Chapter 10 Lab Chapter 10 Quiz Review for Exam 5 Exam 5
31: Mar 27-31	11.1: Facts About the Chi-Square Distribution 11.2: Goodness-of-Fit Test 11.3: Test of Independence
32: Apr 3-7	11.4: Test for Homogeneity 11.5: Comparison of the Chi-Square Tests **(No school Friday - student holiday)**
33: Apr 10-14	**(No school Monday)** 11.6 Test of a Single Variance 11.8: Lab 2: Chi-Square Test of Independence Chapter 11 Quiz 13.1 Intro to One way ANOVA
34: Apr 17-21	13.2 The F Distribution and the F-Ratio 13.3 Facts About the F Distribution Chapter 13 Lab
35: Apr 24-28	Review for Exam 6 Exam 6 Start Final Project
36: May 1-5	**Work on Final Project**
37: May 8-12	**Final Project due before May 15**
39: May 15-19	

***Note that this syllabus is subject to change. Any changes made by the instructor will be reflected in the syllabus uploaded in Google Classroom.**

Diversity Statement: In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and

interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disability Statement: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

Nondiscrimination Policy: South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

Title IX Pregnancy Accommodations Statement: If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact the Director of Health and Wellness at 806-716-2362 or email cgilster@southplainscollege.edu for assistance.