South Plains College – Mathematics Department
Elementary Statistics – MATH 1342 – H.S. Dual Credit
Course Syllabus – Spring Semester 2025

Instructor: Thomas Johnson, M.S.
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Office Hours: Friday from 9:00AM to 11:00 AM
(Please make an appointment if another time is needed.)

Course Description: MATH 1342 Statistical Methods **(3:3:0)** Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. Semester Hours: 3 Lecture Hours: 3 Lab Hours: 0
Pre-requisite: MATH 0320 or two units of high school algebra.
*Note: This course satisfies a **020 Mathematics** Core Curriculum requirement.*

Textbook:
Illowsky, B.; Dean, S.; *Introductory Statistics 2e*; openstax.org; Rice University; Houston, TX; Digital Version ISBN-13: 978-1-961584-32-7, 2023.

Attendance: Attendance and effort are the most important activities for success in this course. Class attendance may be taken at any time during the class period, so please do not be late or leave early. You may be dropped from this course with a grade of X or F if you are absent four (4) consecutive classes or if you exceed six (6) absences throughout the semester. Special circumstances will be considered.

Course Objectives: Successful completion of this course should reflect mastery of the following objectives:
1. Descriptive Statistics
2. Regression Analysis
3. Probability & Discrete Random Variables
4. Normal Distributions
5. Statistical Estimations
6. Hypothesis Testing
7. Technology

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

I. Descriptive Statistics (DS)
- a. Types of data and design of experiments
- b. Data presentation (graphs/charts)
- c. Measures of central tendency
- d. Measures of variation
- e. Exploratory data analysis

II. Regression Analysis (RA)
- a. Scatterplots and correlation
- b. Regression and applications of regression
- c. Regression diagnostics

III. Probability & Discrete Random Variables (PDRV)
- a. Probability concepts
- b. Addition and complement rules
- c. Multiplication and conditional rules
- d. Binomial rules
- e. Discrete probability distributions

IV. Normal Distribution (ND)
- a. Standard normal distribution
- b. Probability calculations using the normal distribution
- c. Sampling distributions and estimators
- d. The Central Limit Theorem

V. Statistical Estimation (SE)
- a. Point estimates and confidence intervals for proportions
- b. Point estimates and confidence intervals for means
- c. Finding the necessary sample size under given conditions

VI. Hypothesis Testing (HT)
- a. One sample mean test (z-test and t-test)
- b. Proportion test (one sample)
- c. Two-mean test for independent samples
- d. Analysis of Variance (ANOVA)

VII. Technology (Tech)
- a. Calculator applications (TI83+ / TI84+)
- b. Computer applications (Excel® spreadsheets)

Core Objectives:

Communication Skills: Effective development, interpretation, and expression of ideas through written, oral, and visual communication.

Critical Thinking: Creative thinking, innovation, inquiry, analysis, evaluation, and synthesis of information.

Empirical and Quantitative Competency Skills: The manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

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.

Assignments & Grading: Homework assignments will be made at each class meeting. Daily work (homework, notebook) will count for 65%, Midterm Exam for 15%, and the Final Exam will count for 20% of the FINAL GRADE. Your final average in the course will determine as a percentage for your HS transcript and a letter grade posted on your college transcript. This grade is determined by the following scale:

A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (0-59%).

Plagiarism violations include, but are not limited to, the following:

1. Turning in a paper that has been purchased, borrowed, or downloaded from another student, an online term paper site, or a mail order term paper mill.
2. Cutting and pasting together information from books, articles, other papers, or online sites without providing proper documentation.
3. Using direct quotations (three or more words) from a source without showing them to be direct quotations and citing them; or
4. Missing in-text citations.

Cheating violations include, but are not limited to, the following:

1. Obtaining an examination by stealing or collusion.
2. Discovering the content of an examination before it is given.
3. Using an unauthorized source of information (notes, textbook, text messaging, internet, apps) during an examination, quiz, or homework assignment.
4. Entering an office or building to obtain an unfair advantage.
5. Taking an examination for another.
6. Altering grade records.
7. Copying another's work during an examination or on a homework assignment.
8. Rewriting another student's work in Peer Editing so that the writing is no longer the original student's.
9. Taking pictures of a test, test answers, or someone else's paper.

Supplies: You will need a TI 83+ or TI 84+ graphing calculator*, graph paper

Supplementary Course Information: Blackboard is the online course management system that will be utilized for this course. This course syllabus, as well as any class handouts can be accessed through Blackboard. Login at http://spc.blackboard.com. The user name and password should be the same as the MySPC and SPC email.

User name: first initial, last name, and last 4 digits of the Student ID

Password: Original CampusConnect Pin No. (found on SPC acceptance letter)

Student Conduct: Any successful learning experience requires mutual respect on the part of the student and the instructor. Neither instructor nor student should be subject to others' behavior that is rude, disruptive, intimidating, aggressive, or demeaning**.** Student conduct that disrupts the learning process or is deemed disrespectful or threatening shall not be tolerated and may lead to disciplinary action and/or removal from class.

Disability: 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 accommodation 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

Equal Opportunity: South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a comprehensive community college setting. It is the policy of South Plains College to offer all educational and employment opportunities without regard to race, color, national origin, religion, gender, disability, or age. 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.

Diversity: 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.

Note: The instructor reserves the right to modify the course syllabus and policies, as well as notify students of any changes, at any point during the semester.

Week 01: 01/13 - 01/17	Sampling & Data
Week 02: 01/21 - 01/24	Descriptive Statistics
Week 03: 01/27 – 01/31	Probability Topics
Week 04: 02/03 – 02/07	Discrete Random Variables
Week 05: 02/10 – 02/14	Continuous Random Variables
Week 06: 02/17 – 02/21	The Normal Distribution
Week 07: 02/24 – 02/28	The Central Limit Theorem
Week 08: 03/03 – 03/07	Review & Midterm Exam
Week 09: 03/10 – 03/14	Confidence Intervals
Spring Break	
Week 10: 03/24 – 03/28	Hypothesis Testing with One Sample
Week 11: 03/31 – 04/04	Hypothesis Testing with Two Samples
Week 12: 04/07 – 04/11	The Chi Squared Distribution
Week 13: 04/14 – 04/18	Regression & Correlation
Week 14: 04/21 – 04/25	The F-distribution & One-way ANOVA
Week 15: 04/28 – 05/02	Review
Final Exam Week: 05/05 – 05/08	FINAL EXAM - TBD