

GENERAL COURSE SYLLABUS - MATH1342 - STATISTICAL METHODS

Department: Mathematics and Engineering

Course Number: Math 1342

Course Title: Statistical Methods

Credit: 3 Lecture: 3 Lab: 0

Course Description: This course is a study of the methods of analyzing data, statistical concepts and models, estimation, tests of significance, introduction to analysis of variance, linear regression, and correlation.

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.

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 Special 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 Special Services Coordinator. For more information, call or visit Linda Young at 716-2577 (Levelland) or Dawn Valles at 716-4675 (Reese).

Core Objectives:

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

- Develop, interpret, and express ideas through written communication
- Develop, interpret, and express ideas through oral communication
- Develop, interpret, and express ideas through visual communication

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

- Generate and communicate ideas by combining, changing, and reapplying existing information
- Gather and assess information relevant to a question
- Analyze, evaluate, and synthesize information

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

- Manipulate and analyze numerical data and arrive at an informed conclusion
- Manipulate and analyze observable facts and arrive at an informed conclusion

Attendance: Required, if you want to pass the class. Excessive absences (based on instructor) may result in an administrative withdrawal.

INSTRUCTOR: Alan Worley
Math & Engineering 120
Phone #: 716-2645
E-mail: aworley@southplainscollege.edu

OFFICE HOURS: Monday/Wednesday: 10:45-11:30am, 2:15-3:00pm
Tuesday/Thursday: 1:30-2:30pm
Friday: 1:15-4:15pm
OR BY APPOINTMENT

TEXTS AND MATERIALS: Elementary Statistics by Bluman (OPTIONAL)
Scientific calculator, (REQUIRED)
** I recommend that you use a calculator with a graphing feature or
TI-30XIIS, but any scientific calculator will do.

Student Learning Outcomes/Competencies:

Upon successful completion of this course, students will:

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.

GRADING: There will be 4 major examinations. In-class assignments will be given without notice and will count as a daily grade (with participation). Late homework will be accepted, but you can only receive a maximum of 50% for any late work. If you have to miss a class, contact the instructor as soon as possible. Homework that is turned in by other classmates will result in a 0. Make-up exams will be given only for special reasons, and arrangements must be made with the instructor prior to the scheduled exam. In addition, make-up exams are significantly harder than the original exams.

A: 90-100	4 Exams:	80%
B: 80-89		
C: 70-79	Assignments:	20%
D: 60-69		
F: 0-59		

FREEDOM: In the United States, you experience many freedoms. Two of these freedoms include: the freedom to succeed and the freedom to fail. Which one will you choose?

Student Learning Outcomes/Competencies

I. Descriptive Statistics

- A. Types of Data and Design of Experiments – 1/16
- B. Data Presentation (Graphs/Charts)– 1/18
- C. Measures of Central Tendency– 1/23
- D. Measures of Variation –1/25
- E. Exploratory Data Analysis –1/30

II. Regression Analysis

- A. Scatterplots and Correlation –2/1
- B. Regression and Applications of Regression – 2/6
- C. Regression Diagnostics– 2/6

EXAM 1 – 2/13

III. Probability and Discrete Random Variables

- A. Probability Concepts – 2/18
- B. Addition and Complement Rules – 2/18 or 2/20
- C. Multiplication and Conditional Rules – 2/20 or 2/25
- D. Binomial Rules – 2/27
- E. Discrete Probability Distributions – 3/1

EXAM 2 – 3/8

IV. Normal Distribution

- A. Standard Normal Distribution– 3/20
- B. Probability Calculations Using the Normal Distribution – 3/22
- C. Sampling Distributions and Estimators – 3/27
- D. The Central Limit Theorem – 3/27

V. Statistical Estimation

- A. Point Estimates and Confidence Intervals for Proportions – 3/29
- B. Point Estimates and Confidence Intervals for Means – 4/3
- C. Finding a Necessary Sample Size under Given Conditions –see dates above

EXAM 3 – 4/10

VI. Hypothesis Testing

- A. Steps for Hypothesis Testing – 4/12
- B. Proportion Test – 4/24
- C. 1-sample mean test – 4/17 and 4/19
- D. Two-mean test for independent samples – 4/26
- E. Analysis of Variance – 5/1

VIII. Technology

- A. Calculator applications – All sections – All semester

FINAL EXAM – 5/7 – 5/10

Comprehensive Final Statistical Project – Thursday, May 3