Math 11 – 52015, 52017, 52022, 52023   **Introduction to Statistics**   **Reedley College**

Mr. Jim Gilmore   Spring 2024

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Office Hours: M, W 10:00-10:50, T, Th 8:00-8:50, F Friday 8:00-8:50 by zoom

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Welcome to Elementary Statistics

I look forward to spending the semester with you. Over the semester, you will experience a range of feelings, including: success and failure; challenge and boredom; accomplishment and frustration. Please know that I and your fellow students will be here to help you through it. Having persistence, working hard, putting in time and effort will help you succeed.

As your instructor, I will do what I can to give you the resources and support to help you succeed. Please reach out to me if I can help you.

There are many excellent resources available to you on our campus. Other students in class are a good resource and I would encourage you to form small groups to study and do homework together. If you have an unanswered question, contact me and we will meet via Zoom by appointment or during my office hours. I am often available, so email me.

STEM Math Center

The STEM Math Study Center (MSC) is a free tutoring resource available to all Reedley College math students. The services available in the MSC are focused on increasing our students' ability to understand and enjoy mathematics. We hope to bridge the gap that keeps our students from pursuing majors and careers in math-related fields. The MSC has a study area in which students can receive services or study alone. In addition to its study area, the MSC contains the offices of most of our mathematics instructors.

What services are available in the STEM Math Study Center?

The MSC offers drop-in tutoring facilitated by our faculty and well-qualified student tutors. The MSC has 20 computers and online access available to students with online math homework. The MSC offers bilingual tutoring to Spanish speaking students.

This semester the Math Study Center will have BOTH in person and online tutoring.

There are in-person, drop-in hours located in the Math Center and also Zoom tutoring.

Tutoring outside of these hours will be available online by appointment, which can be scheduled through the website: https://www.reedleycollege.edu/academics/tutoring-services/index.html. This link can also be found in your canvas courses under the "RC Tutoring Services" navigation link or drop in by appointment on the Canvas home page.

Contact the coordinator Becky.Reimer@reedleycollege.edu for more information

Course Description:

This course is an introduction to statistical methods and techniques with applications in the fields of business, behavioral and social science, as well as in science, technology, engineering, and mathematics. Topics include descriptive measures of central tendency and variability, probability, binomial and normal distributions, random variables, sampling, estimating, hypothesis testing (parametric and nonparametric), correlation and regression.

Basic Skills Advisories: Eligible for English 1A

Subject Prerequisites: Math 103 or Math 211 or appropriate AB 705 placement. (A, CSU-GE, UC, I) (C-ID Math 110)

Text (Optional): Ron Larson, Elementary Statistics: Picturing the World, Pearson, 8th Edition, 2023.

Notes: Notes for this class are available in the bookstore and are required. You will need to fill them out for each lesson.

Required: TI-84 Calculator.

StarFish

This class will participate in Starfish Early Alert, which promotes student success through coordination and communication among students, instructors, counselors, and campus support service departments. If I observe that you are experiencing difficulties in the course (attendance concerns, missing assignments, at risk of failing, etc.), I may send an email to your sccd.edu email account through the Starfish Early Alert system. My message will tell you about my concerns and ask you to contact me regarding the concern and what strategies may help you be successful in the course. A counselor or special program may also follow-up with you regarding the concern. In addition, if I observe that you are doing well in my course, you may also receive "kudos" from me acknowledging your efforts. Starfish Early Alert provides notices by email and/or text. Please check your sccd.edu account frequently.

Attendance:

Everyone can learn math, but don't do it alone! Watch each lecture online! Participating in the class videos will help prepare you for exams and is truly an integral part of your learning process. Complications can arise during the semester that can impede participating in class. If you have trouble with anything in the notes or video, get help in the Math center, tutorial and learning services center, the embedded tutor, my office hour, or a friend. It is important that you know the absence policy. If you miss three classes, you may be dropped. Missing class for online classes will be interpreted as missing or not completing three homework assignments on time. You are expected to complete all assignments on time. If you decide to drop the course, it is your responsibility to make the drop official in the Administrations and Records office or else possibly receive a grade of F.

Note: The drop deadline is 3/8/24. After this date, you will get a grade in the class.

Homework: When a student has not satisfactorily completed 3 homework assignments they may be dropped. When you have not completed an assignment on time, you can still complete the assignment up to the date of the test for the chapter, but you will see reduced credit of 10%. After the test date, you will receive no credit for the assignment. You must complete the previous assignment before going to the next assignment.

Tests: There are no makeup exams for missed tests.

Grading:

- *Homework by chapter and percentage of overall grade*:

Chapter 1, 2%	Chapter 2, 2%	Chapter 3, 2%	Chapter 4, 2%
Chapter 5, 2%	Chapter 6, 2%	Chapter 7, 2%	Chapter 8, 2%
Chapter 9, 2%	Chapter 10, 2%		

- *Tests by chapter and percentage of overall grade*:

Chapter 1, 8%	Chapter 2, 8%	Chapter 3, 8%	Chapter 4, 8%
Chapter 5, 8%	Chapter 6, 8%	Chapter 7, 8%	Chapter 8. 8%
Chapter 9, 8%	Chapter 10, 8%		

Percent of Total Points	Grade
90-100	A
80-89	B
68-79	C
55-67	D
0-54	F

Where to Find Your Grade:

- Canvas - Grades. (not in MyMathLab)

Special Needs Requests:

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, you are encouraged to provide me with your notification of authorized services form from DSP&S and consult with me immediately so that arrangements can be made.

Academic Integrity

You are expected to be honest. In this course, that primarily means you should never submit work that is not your own. This does not mean that you are not allowed to work with other students. I encourage you to collaborate on homework problems! It is often more fruitful and enjoyable to work with other people when trying to figure something out. They can give you a fresh insight or different perspective on the problem. Conversely, explaining your idea to another person forces you to clarify your thoughts and can help to highlight flaws you may have previously overlooked. However, if you work with others to come up with a solution, afterward you should write up your work on your own. You should not base your homework on another student's homework, and never put your name on something you do not understand.

Below is the official School policy on academic dishonesty, cheating and plagiarism.

Academic Dishonesty

Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.

Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers, in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another's work, supplying one's work to another, giving or receiving copies of examinations without an instructor's permission, using or displaying notes or devices inappropriate to the conditions of the examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely.

Plagiarism is a specific form of cheating: the use of another's words or ideas without identifying them as such or giving credit to the source. Plagiarism may include, but is not limited to, failing to provide complete citations and references for all work that draws on the ideas, words, or work of others, failing to identify the contributors to work done in collaboration, submitting duplicate work to be evaluated in different courses without the knowledge and consent of the instructors involved, or failing to observe computer security systems and software copyrights.
Incidents of cheating and plagiarism may result in any of a variety of sanctions and penalties, which may range from a failing grade on a particular examination, paper, project, or assignment in question to a failing grade in the course, at the discretion of the instructor and depending on the severity and frequency of the incidents.

Student Learning Outcomes are statements about what the discipline faculty hope you will be able to do at the end of the course. This is NOT a guarantee: the ultimate responsibility for whether you will be able to do these things lies with you, the student. In addition, the assessment of Student Learning Outcomes is done by the department in order to evaluate the program as a whole, and not to evaluate individual faculty performance.

Course Objectives

1. Distinguish among different scales of measurement and their implications;
2. Identify the standard methods of obtaining data and identify advantages and disadvantages of each;
3. Interpret data displayed in tables and graphically;
4. Calculate measures of central tendency and variation for a given data set;
5. Apply concepts of sample space and probability;
6. Calculate the mean and variance of a discrete distribution;
7. Calculate probabilities using normal and t-distributions;
8. Distinguish the difference between sample and population distributions and analyze the role played by the Central Limit Theorem;
9. Construct and interpret confidence intervals;
10. Determine and interpret levels of statistical significance including p-values;
11. Interpret the output of a technology-based statistical analysis;

12. Identify the basic concept of hypothesis testing including Type I and II errors;
13. Formulate hypothesis tests involving samples from one and two populations;
14. Select the appropriate technique for testing a hypothesis and interpret the result;
15. Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics;
16. Use appropriate statistical techniques to analyze and interpret applications based on data from disciplines including business, social sciences, psychology, life science, health science, and education;
17. Use just-in-time support to accomplish the objectives of the course; and
18. Identify and use appropriate study skills to show competence in basic statistics.

COURSE CONTENT OUTLINE:

A. Introduction to Statistics
   1. Summarizing data graphically and numerically
      a. Frequency distributions
      b. Graphs
   2. Descriptive statistics:
      a. measures of central tendency: mean, median, mode
      b. measures of variation: variance, standard deviation, quartiles, range
      c. relative position
      d. levels/scales of measurement
B. Probability
   1. Sample spaces and probability
   2. Random variables and expected value
   3. Sampling and sampling distributions
   4. Discrete distributions – Binomial
   5. Continuous distributions – Normal
C. Sampling Theory
   1. Simple random sample
   2. Central Limit Theorem
D. Estimating Population Parameters
   1. Estimation and confidence intervals from a small or large sample.
   2. Sample size.
E. Hypothesis Testing (Parametric/Nonparametric)
   1. One population, one and two-sided tests.
      a. z-test for means and proportions
      b. t-test for means (independent and dependent samples)
   2. Two populations, sampling distributions
   3. Chi-square (Goodness of Fit and Contingency Tables)
F. Correlation and Simple Linear Regression
   1. Correlation coefficient
   2. Regression coefficient
   3. Test of hypothesis about the value of correlation/regression coefficient.
   4. Analysis of variance (ANOVA)

G. Applications/Technology
   1. Applications using data from disciplines including business, social sciences, psychology, life science, health science, and education
   2. Statistical analysis using technology such as SPSS, EXCEL, Minitab, or graphing calculators

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Student Learning Outcomes

Calculate and interpret measures of central tendency and dispersion
Calculate basic probabilities
Calculate, interpret, and analyze probability distributions and confidence intervals.
Calculate, interpret, and analyze hypothesis testing
Calculate, interpret, and analyze correlation, regression, and analysis of variance

Important Dates for Spring 2024

DATE	DAY	EVENT / DEADLINE
January 8	(M)	School starts
January 15	(M)	Martin Luther King Day
February 16-19	(F, M)	President's Weekend
March 8	(F)	Last day to drop
March 25-29	(M-F)	Spring Break
May 13	(M)	Final (chapter 10) for schedule number 52015 (8 AM)
May 15	(W)	Final (chapter 10) for schedule number 52017 (11 AM), 52022, 52023

Please send all correspondence through Canvas.