

Math 11-55156 Elementary Statistics with Support

Semester/Year: Fall 2019

Units: 5

Location: Soc 31

Office Hrs: Mon-Thurs 12-1pm

Instructor: Kelly Winter

Office Location: FEM 1L

Phone number: (559) 638-0300 ext 3471

Email: kelly.winter@reedleycollege.edu

Virtual Office Hr: Friday 12-1pm via Canvas

Length: 18 weeks (Aug 12 – Dec 13)

Schedule

This class meets Monday through Friday 1-1:50pm.

Prerequisite: none

Final Exam: Monday, Dec 9, 1-2:50pm

Welcome to Elementary Statistics: It is my desire to help each one of my students succeed and gain confidence in their math and statistics skills. I believe that all students can succeed if they stay organized, set aside consistent work time, complete all assigned work, ask questions and prepare for exams. I am here to guide you through the course, answer questions and encourage you to work hard. I am looking forward to this semester.

There are many excellent resources available to you on our campus. We will have an embedded tutor, Francisco Cruz, in this course to assist you in class and in the math center. 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, come by my office (FEM 1L) which is in the FEM building located in the Math Center. I am working in the Math Center Mondays, Tuesdays and Fridays 9-10am.

Other available resources are:

- The Math Center in the FEM building, room 1. Hours: Monday-Thursday 8:00am - 4:00pm and Friday 8:30am -12:00pm. (559) 638-0300 ext. 3158
- The Tutorial Center. Hours: Monday-Thursday 8am-4pm, Friday 8am-3pm.
- The Library and computer lab. Hours Monday-Thursday 7:30am-8pm, Friday 7:30am-3pm.

Course Description: Math 11 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, just-in-time-support learning and study skills.

Textbook: Elementary Statistics: Picturing the World 7th edition by Ron Larson

Other Course Materials/Technology: Our class will rely heavily on the use of online materials. To access our course materials and homework assignments, you will need to log in to MyMathLab via Canvas. **Access to MyMathLab is a requirement for this course.** MyMathLab can be purchased a couple of ways. You can buy a new paper textbook in the bookstore and it comes with a MyMathLab access code. You can also purchase just the access code, which will give you access to a book online only. You must have access to MyMathLab by Friday, August 16th or you may be dropped from the course. A graphing calculator is recommended for this course. A phone, ipod, ipad, computer, or other device will not be allowed

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during a test. Our library at Reedley College will let you borrow a graphing calculator for the semester but they run out, so go see them ASAP. Otherwise a recommended purchase is a Texas Instrument 84 or 83 (TI84 or TI83). We will also be using the excel program on computers and a free version can be downloaded to your computer. Excel is also available on all school computers.

Makeup Work/Late Assignments

Each week there will be homework assigned online in MyMathLab. Each week's assignments open on Monday morning and are due the following Monday evening by midnight. This gives you plenty of time to work through each assignment and get help on questions that you may get stuck on. You are given three attempts to answer each question correctly in MyMathLab before you will be marked down. Please use "Similar Question" in order to restart a question and receive full credit. All students in this course should spend a minimum of **ten hours per week** outside of the classroom on homework, studying, reading the text and preparing for exams.

Assignment Point Values	
<i>Assignment</i>	<i>Value</i>
Homework & Quizzes	20%
Chapter Exams	70%
Final Exam	10%

Final Grades	
<i>Letter Grade</i>	<i>%</i>
A	90 -100
B	80 - 89.4
C	70 - 79.4
D	60 - 69.4
F	0-59.4

Grading Policies/Rubrics

Please monitor your grade on Canvas. It is your responsibility to make sure that your grade is accurate. If there is a discrepancy, please email me ASAP.

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 the 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.

NOTE: 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 or section 504 of the Rehabilitation act please contact me as soon as possible.

Please refer to SCCCD polies for guidance on all matters relating to this course.

Objectives

In the process of completing the course, the student will:

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 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
- H. Study Skills
 - 1. Improving Your Note Taking
 - 2. Improving Your Memory
 - 3. Effective Listening Skills
 - 4. Using Effective Time Management To Optimize Your Studying
 - 5. Coping With Test Anxiety
 - 6. Finding a Good Study Location
 - 7. Using Studying Groups
 - 8. A Guide for Studying Math
 - 9. Solving Math Word Problems
 - Setting and Achieving Goals