Instructor Information

- Mrs. Kelsey Casteel
- Office is FEM 1G (far corner of the Math Center)
- Office Hours: Mondays and Wednesdays 9-9:50 am, Tuesdays 3-3:50 pm, Thursdays and Fridays 10-10:50 am. If these times do not work for you, please talk with me before or after class or send me a message and we can easily find time to meet.
- The best way to get ahold of me is by sending a message through the messaging system in Canvas. You can also email me @ kelsey.casteel@reedleycollege.edu. When sending an email, use only your scccd email and include your full name and class. You can also call my office phone at 559-638-0300 x 3799.

Course Information

Welcome to Math 11, Elementary Statistics! Our section number is 55448. This course is a 100% online course offered through Reedley College, which means you will NEVER come to campus for anything. Everything for this course will be housed in Canvas and MyLab Statistics (an online program by Pearson).

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. Please note this is the same class as Math 11, just with more time for support.

- Advisory: Eligibility for English 1A or 1AH
- Prerequisite(s): Mathematics 103 or equivalent
- Credits: 4

Course Materials

Required: MyLab Access. This will give you access to all assignments and an electronic copy of the full textbook. You can use a free temporary 14 day access at first if you wish. You find this option on the purchasing page when you are setting up your MyLab account **through Canvas (you will not set up your account through the external Pearson website. You will access it by clicking on the MyLab and Mastering Link on the left side of our Canvas page.)** The cheapest purchasing option is to use a credit or debit card through the website. You also can purchase a code in the bookstore, but that will be a bit more expensive.

Required: Access to Microsoft Excel and a calculator of your choice, make sure it is at least scientific. You can use your student email to download Office 365 for FREE that will have the excel program in it. You will be able to do all calculations using excel and a scientific calculator. There is an awesome FREE scientific online calculator at https://www.desmos.com/scientific that you can use for your calculations.

Optional: There are many calculations done throughout the semester that can be done with different technologies. I will utilize excel for my examples, but you can also work with a Texas Instrument calculator such as a TI-83 or TI-84.

Optional: A hard copy of the textbook. This is NOT required for the class. The online MyLab access comes with the electronic copy of this book. We are using *Elementary Statistics Picturing the World* 7th edition by Ron Larson and Betsy Farber.

Textbook ISBN-13: 9780134683416
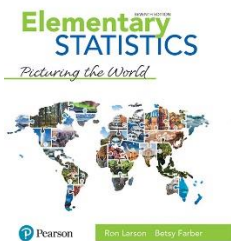
Student Learning Outcomes

Upon completion of this course, students will be able to:

- Organize, analyze, and utilize appropriate methods to draw conclusions based on sample data by using tables, graphs, measures of central tendency, and measures of dispersion.
- Apply concepts and terminology of statistics.
- Implement the rules of probability.
- Collect data, interpret and communicate the results using statistical analyses such as confidence intervals, hypothesis tests, and regression analysis.

Course Objectives

In the process of completing this course, students will:

- Distinguish among different scales of measurement and their implications
- Identify the standard methods of obtaining data and identify advantages and disadvantages of each
- Interpret data displayed in tables and graphically
- Calculate measures of central tendency and variation for a given data set
- Apply concepts of sample space and probability
- Calculate the mean and variance of a discrete distribution
- Calculate probabilities using normal and t-distributions

- Distinguish the difference between sample and population distributions and analyze the role played by the Central Limit Theorem
- Construct and interpret confidence intervals
- Determine and interpret levels of statistical significance including p-values
- Interpret the output of a technology-based statistical analysis
- Identify the basic concept of hypothesis testing including Type I and II errors
- Formulate hypothesis tests involving samples from one and two populations
- Select the appropriate technique for testing a hypothesis and interpret the result
- Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics
- 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

Lecture Content

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

Grading

You can see your assignment grades and overall class grade anytime in Canvas. Your overall class percentage is broken down as follows:

- Section Assignments 25%
- Chapter Exams 70%
- Discussions 5%

See the following for final grade distribution based on overall class percentage:

89.5 - 100% A

79.5 - 89.4% B

69.5 - 79.4% C

59.5 - 69.4% D

0 - 59.4% F

Section Assignments / Discussions

The section assignments are done through the online MyLab program. You will have unlimited time and attempts for all questions in every assignment. MyLab has many great resources, such as show me an example and help me solve this. Take advantage of these great tools! Discussions will be conducted through Canvas.

Late Assignment Policy: Once the due date and time have passed an assignment/discussion is considered late. You can work on all late assignments/discussions and earn 60% of the credit (which is much better than a zero!) until the final exam at the end of the semester.

Exams

There will be an exam for each chapter along with a practice exam to help you study. You only have one attempt per exam so make sure you are ready to sit down and finish the exam in one sitting when you open it. You can take ONE late exam that must be completed within 72 hours of the original due date. If you need to use your one late extension on an exam, please send me a message ASAP.

Final Exam

This course does not have a cumulative final at the end of the semester, the final exam is the last chapter exam.

Extra Credit

No extra credit is available for this course.

Technology

Technology is crucial to this course as it is 100% online. You should make a habit of checking Canvas on a daily basis. It is your responsibility to ensure you have a reliable computer and internet connection. **Lack of either is NOT an excuse for extensions.** You should have a back-up plan in case you have computer or internet issues.

Resources

- Your instructor
- Your fellow students
- Your textbook
- FREE tutoring in the Math Center located in FEM 1. Hours are Monday-Thursday 8 am to 4 pm and Fridays 8 am to 12 pm.
- FREE tutoring in the Learning Center (aka tutorial center) located in the library.
- Online resources: Khan Academy, YouTube, any other websites you find that are helpful (please share with the rest of the class).

College Policies

Accommodations for Students with Disabilities
If you have a verified need for an academic accommodation or materials in alternate media (ie: Braille, large print, electronic text, etc.) per the American With Disabilities Act or Section 504 of the Rehabilitation act please contact me as soon as possible.

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" (Reedley College Catalog pg 49).

Cheating
``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" (Reedley College Catalog pg 49).

Disruptive Students
Disruptions will not be tolerated. It is my goal to provide the most comfortable and welcoming environment in our class. Cell phones are only allowed in class when taking a picture of something on the board, researching a topic in class, or using them for activities during class (such as Kahoot!). ``Reedley College's Student Code of Conduct Policy (Board Policy 5520 and Educational Code 76032) authorizes an instructor to remove a disruptive student from his or her class for the day of the removal and the next class meeting. The instructor shall immediately report the removal to the Vice President of Student Services. During the period of removal, a student shall not be returned to the class from which he or she was removed without the concurrence of the instructor of the class" (Reedley College Catalog pg 49).

Student Rights
``Student rights are protected by federal and state laws, and by policies established by the trustees of the State Center Community College District. It is therefore essential for the protection of students' rights that procedures be established and followed which would identify violations of student conduct standards and the resolutions of such violations. Students have a right to an oral or written notice (reasons for disciplinary action), an opportunity for a review, and a decision given orally or in writing. For more information contact the Vice President of Student Services' office. (Board Policy 5520, Administrative Regulation 5520)" (Reedley College Catalog pg 49).

Drop Policies

Student Drops: If you wish to drop the course, it is your responsibility to do so in Webadvisor. Please see the important dates below to know when you can drop.

Instructor Drops: You will be dropped from the course if any of the following occur:

- Not having your MyLab account set up by 11:59 pm on Wednesday January 15th.
- If started with the temporary MyLab access, not upgrading to full access by 11:59 pm on Wednesday January 29th.
- Not participating in the course for two weeks.

Important Dates

- Monday January 13th : Start of the semester
- Monday January 20th : Martin Luther King, Jr. Day observed (no classes, campus closed)
- Friday January 24th : Last day to drop a full term (18 week) course for a full refund

- Sunday February 2nd : Last day to drop the class and NOT receive a W (withdraw). It is as if you were never in the class.
- Friday February 14th: Lincoln Day observance (no classes held, campus closed)
- Monday February 17th : Washington Day observance (no classes held, campus closed)
- Friday March 13th: Last day to drop a full term class and get a W (letter grades assigned after this date)
- April 6 – 10 : Spring recess and Good Friday Observance (no classes, campus closed on the 10th)
- May 18-22: Final exam week. All work for this course is due by 11:59 pm on Friday May 22nd at 11:59 pm.

*** This syllabus is subject to change at the discretion of the instructor***