



MATH 11: ELEMENTARY STATISTICS
SPRING 2019

Instructor Information

- Mrs. Kelsey Casteel (formerly Friesen)
- Office is FEM 1G (far corner of the Math Center)
- Office Hours: Mondays and Wednesdays 10:00-10:50 am, Tuesdays and Thursdays 8:00-8:50 am, and Fridays 11:00 – 11:50 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.friesen@reedleycollege.edu. When sending an email, use only your sccd email and include your full name and which class you are in. 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 55381. We meet Monday through Thursday from 11:00 am – 11:50 am in Classroom Complex I (CCI) room 200.

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

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

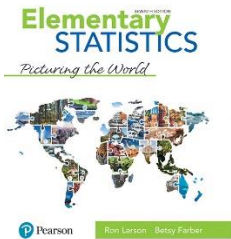
Course Materials

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 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: Graphing calculator. The best one for our class is a TI-84 (TI stands for Texas Instrument). Our Library checks them out for the entire semester for FREE! You also probably know someone that you could borrow from. You can buy one from any store that carries school supplies (like Target or Office Depot). Amazon sells used ones that are still in very good condition.

Optional: A hard copy of the textbook. This is NOT required for the class. Your MyLab access comes with 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; and
- 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:

- Homework Assignments / In Class Work 30%
- Regular Exams and Final Exam 70%

Example of class grade calculation: Let's say you have an 85% grade in homework / in class assignments and a 76% grade in exams. Then your overall class percentage would be

$$.30*85 + .70*76 = 25.5 + 53.2 = 78.7$$

You would have a 78.7% as your overall class grade, and would thus have a C in the class. See the below grade distribution.

89.5 - 100%	A
79.5 - 89.4%	B
69.5 - 79.4%	C
59.5 - 69.4%	D
0 - 59.4%	F

Homework

Most of the homework assignments will be done through the online Pearson program called MyLab. Since they are online, you are still expected to turn the homework in by the due date even if you aren't in class. Once we complete a section, an assignment will be created. Any assignments created during a week will be due the following Wednesday evening at 11:59 pm. For example, any homework assigned during the week of January 14-17 would be due by Wednesday January 23rd at 11:59 pm. You will have unlimited time and attempts for all questions in every assignment. At the beginning of class each day students will have a chance to ask questions on problems they have been working on, so take advantage and try to start the problems the day they are given so you have the opportunity to ask questions. MyLab has many great resources, such as show me an example and help me solve this. Take advantage of these great tools!

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

Extra Credit

There will be a few extra credit opportunities, so take advantage of them! Extra credit opportunities will be made clear and available to everyone in the class. To be fair, no individual extra credit assignments will be given (so don't count on that at the end of the semester).

In Class Assignments

In addition to homework, you will have occasional in class assignments. Sometimes these will be done individually and other times in groups. If you are absent when we have an in class assignment, it is your responsibility to speak with me or check Canvas so that you can make it up.

Exams

There will be 3 free response exams – Exam 1 on Part 1 Descriptive Statistics (chapters 1 and 2), Exam 2 on Part 2 Probability and Probability Distributions (chapters 3-5), Exam 3 on Part 3 Statistical Inference (chapters 6-8). Content covered from part 4 More Statistical Inference (chapters 9 and 10) will be assessed on the final exam, so we won't have a separate exam on that section. On the exams, each question will be graded on work shown and correctness - partial credit is possible on most questions. All exams will have equal weight in your overall class grade percentage. If you know you won't be able to make it to class when we have an exam, please let me know and we will arrange a time for you to take it in the math center.

Final Exam

There will be a mandatory final exam at the end of the semester. It will be cumulative (meaning on all material covered throughout the class) and free response, with partial credit available as with the regular exams. If a student misses an exam during the semester, then the final exam score will go in for that grade. If a student has not missed any exams, then the final exam will go in for the lowest exam given the final score is higher.

The final exam for this class will take place on Monday May 20th from 11:00 am to 12:50 pm.

Technology

As a student of SCCCD, you are given a free student email account. Make sure you are able to login to this account and check it on a regular basis (at least once a day). You can also set it up through your smart phone if you have one and set up email alerts so that you never miss anything important. For example - you wouldn't want to come to campus when your class has been canceled. Your student email is the official way your instructors communicate with you outside of class. In addition to your email account, you also have a Canvas account set up by the college. Everything that has to do with our course will be on our Canvas page, so make sure you have access and sign in on a regular basis.

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:

- Missing four days of class within the first three weeks of the semester without talking with me, so between January 14th and February 1st.
- Not having full, paid access to MyLab by 11:59 pm on Wednesday January 30th (please talk with me if there is an issue)
- Missing 10 days of class within the first nine weeks of the semester without talking with me, so between January 14th and March 14th.

Important Dates

- Monday January 14th : Start of the semester
- Monday January 21st : Martin Luther King, Jr. Day observed (no classes, campus closed)
- Friday January 25th : Last day to drop a full term (18 week) course for a full refund
- Sunday February 3rd : Last day to drop the class and NOT receive a W (withdraw). It is as if you were never in the class.
- Friday February 15th: Lincoln Day observance (no classes held, campus closed)
- Monday February 18th : Washington Day observance (no classes held, campus closed)
- Friday March 15th: Last day to drop a full term class (letter grades assigned after this date)
- April 15-18: Spring recess (no classes, campus open)
- Friday April 19th: Good Friday observance (no classes, campus closed)
- May 20-24: Final exam week. **Our final is Monday May 20th from 11:00 am to 12:50 pm in our normal room**

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