

**MATH-11** (52363)

ROOM-CCI 200

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**Elementary Statistics FALL 2019**

M & W @ 3:30p-5:20p

**REEDLEY COLLEGE**

**WELCOME to Elementary Statistics:** Students who attend class regularly, come prepared to class, participate in class, take notes, do the assignments, and pass the assessments should be successful. You **MUST** make an effort and do your **BEST** to ensure success in this class. To pass this course you will need a C or better grade to move on to the next level.

**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:** English 1A

**SUBJECT PREREQUISITES:** Math 103 or AB 705 Placement

**TEXT:** Ron Larson, Elementary Statistics, Pearson, 7<sup>th</sup> Edition, 2017.

**NOTES:** Notes for this class will be required for each class meeting and they will be located in CANVAS.

**COURSE OBJECTIVES:**

In the process of completing this course, students 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; and
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.

**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

## **REQUIRED MATERIALS:**

- Paper 8 ½” by 11”
- Pencils
- **No cell phones** (During testing)
- TI-84 or PLUS (Can be checked out at Reedley College Library)
- **Access Code to MyMathLab (Pearson)**

**ASSIGNMENTS:** The assignments will account for 25% of your grade.

- Each homework assignment will be completed online and the assignments can be found at the My Math Lab website, [www.pearsonmylabandmastering.com](http://www.pearsonmylabandmastering.com). You may work ahead if you like; all homework assignments for the entire chapter will be made available to the student approximately three days before the start of the chapter. **It is important to stay current to be successful in this course!** Each assignment has a due date and time. Any late assignment will lose 25% of the points possible for every day is late.
- **Students who do not sign up at [www.pearsonmylabandmastering.com](http://www.pearsonmylabandmastering.com) and complete the first two assignments (Sections 1-1 and 1-2) by January 23, 2019 will be dropped.** My Math Lab will allow you to enroll on their site with a temporary access without buying the access code.
- Any student who enrolls with a temporary **access code will be required to have purchased the access code and be permanently enrolled in the My Math lab course by THURSDAY, February 4, 2019.** **Failure to do so will result in a drop from the course!**

**IMPORTANT NOTICE:** While working on an assignment, you do not have to complete an entire assignment in one seating. If you choose to stop for a while, make sure to click **SAVE** icon and the program will save your work. You can come back to work on the assignment and continue where you left off at another convenient time.

- **Being absent on the day the assignment is due does not excuse you from the late submission penalty.**

**TUTORIAL SERVICES:** The Math Center in the FEM building at Reedley College, room 1. Hours: M-Th 8:00 AM - 4:00 PM and F 8:30 AM -12:00 PM. (559) 638-0300 ext. 3158

- The Tutorial Center at Reedley College is open M-F until 5:00.
- YouTube also has many good videos for help.
- [Video for the Academic Support Centers](#)
- **Note:** If you have any questions you would like to ask of me, your, please ask me during class time or contact me via email and I will do my best to help you.

**ASSIGNMENTS NOTEBOOK:** **ALL** online assignments problems are to be worked out completely, with all work shown in your 8 ½” by 11” listed in the materials list. Each assignment and the problems of the assignment are to be clearly labeled and answers are to be boxed or highlighted.

**QUIZZES:** There will be **weekly** in-class homework assignments quizzes. These quizzes will be given either at the beginning or the end of class. The quizzes will account for 10% of your grade.

**ATTENDANCE:** Everyone can learn math, but don’t do it alone! Come to class and be ready to learn! In class we will be working on developing your understanding of key concepts and we’ll be doing a lot of problem

solving. Through actively participation in class activities will help you be prepared for quizzes and exams. Also, participation is truly an integral part of your learning process and will help you succeed in this course as well as in college. If you miss class, before you do anything else contact me by email.

**BEHAVIORIAL STANDARDS:** Your classmates and I would greatly appreciate that you take care of any personal needs (i.e., using the restroom, getting a drink, sharpening a pencil) before class begins. Please turn your phone off, put it out of sight, and remove any earbuds when you come into class. You may **not** use your phone as a calculator while doing class work or during testing time. Make sure to follow my rules posted in the classroom and the school policies to ensure success in this course. I am looking forward to have a good semester with all of you!

**EXAMS:**

- There will be exams with percent value and the exams will cover at least one-chapter material.
- If you absolutely must be absent on the day an exam is scheduled, you must discuss with me the possibility of taking the exam **early**.

**IMPORTANT DATES:**

<b>January 14, 2019</b>	<b>(M)</b>	First day of school
<b>January 21, 2019</b>	<b>(M)</b>	Martin Luther King, Jr. Day (No School)
<b>January 23, 2019</b>	<b>(W)</b>	Deadline to enroll in MML and complete the first assignments
<b>February 1, 2019</b>	<b>(F)</b>	Last day to register for full term in person or Last day to drop and avoid a “W” in person
<b>February 4, 2019</b>	<b>(M)</b>	Deadline to be PERMANENTLY ENROLLED in MML
<b>February 18, 2019</b>	<b>(M)</b>	Washington Day (No School)
<b>March 8, 2019</b>	<b>(F)</b>	Last Day to drop a full term class and not receive a grade
<b>April 15-18, 2019</b>	<b>(M-TH)</b>	Spring recess/Spring Break (No School)
<b>April 19, 2019</b>	<b>(F)</b>	Good Friday
<b>May 24, 2019</b>	<b>(F)</b>	End of Spring 2019 Semester
<b>May 20, 2019</b>	<b>(M)</b>	Final Exam (Regular time)

**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 DHS counselor 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’s 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.

**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.

**PERSONAL AND TECHNOLOGY EMERGENCIES:**

I am well aware that sometimes emergencies occur. To account for these unexpected events, I have made the following allowances:

- The lowest **two homework assignments grades** will be dropped.
- The lowest **two quiz grades** will be dropped.
- The final exam will replace the lowest exam (or a zero score if you miss an exam) if the final exam score is higher.

**FINAL EXAM:** The final may be used to replace a low exam score or a missed exam. The final may not be used to replace the homework assignment grade, or quiz grade.

**GRADING:**

Letter Grade		Categories	Percent of Grade
A	90%-100%	Assignments	25%
B	80%-89%	Quizzes	10%
C	68%-79%	Exams	65%
D	55%-67%		
F	0%-54%	<b>This is a transferable course!</b>	

**EXAMPLE:** If you homework assignments average is 85, the average of your quizzes is 70, the average of the average of your exams and the final exam 76, then you would compute your grade as follows;

$$(.25)(85)+(.10)(70)+(.65)(76) = 21.25 + 7 + 49.4 = 78.65 \text{ or } 78.7$$

- Your grade will then be determined by reading the above chart with the grading scale. Thus, your grade in the above example will be 78.7% or C.