

## **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. I am often available, so email me.

Other available resources are:

## **Math Center**

The Math Center is a free tutoring resource available to all Reedley College math students. It is currently offering online tutoring with our own Reedley College embedded tutors, other student tutors, and math faculty. Please [self-enroll in the Math Center Canvas course](#) to view the schedule for drop-in tutoring, available Monday-Friday 8am-5pm. If you want to plan ahead, or need help in the evenings, or on weekends, connect with a Reedley College tutor by making an appointment through [Tutor Matching Service](#). (Link to video on how to use Tutor Matching Service).

Direct link to self-enroll: <https://sccd.instructure.com/enroll/TTH4JM>

Direct link to Tutor Matching Service: [www.tutormatchingservice.com/reedley](http://www.tutormatchingservice.com/reedley)

## **What is the STEM Math Study 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 math faculty and well-qualified student tutors. The MSC has 20 computers and online access available to students with online math homework. The MSC offers workshops on specific math topics throughout the semester to enhance and augment the math education offered to students. The MSC offers bilingual tutoring to Spanish speaking students.

## **How can I use the STEM Math Study Center?**

To use the MSC, students must enroll in INTDS 300, a non-credit course. Enrollment forms are available in the center. Once enrolled in the class, students need only to log-in to the MSC computer when they arrive and log-out when they leave. You can contact [Rebecca.Reimer@reedleycollege.edu](mailto:Rebecca.Reimer@reedleycollege.edu) for more information.

- YouTube also has many good videos for help.

[Academic Support Centers Video](#)

## **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 and Betsy Farber, Elementary Statistics: Picturing the World, Pearson, 7th Edition, 2019.

**Notes:** Notes for this class are available in the book store 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 can 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 3/11/22.

**Homework:** NO LATE HOMEWORK WILL BE ACCEPTED! When a student has not satisfactorily completed 3 homework assignments they will be dropped. Any assignment that is not done on time will receive a grade of 0%.

**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, 3%	Chapter 4, 3%
Chapter 5, 3%	Chapter 6, 3%	Chapter 7, 3%	Chapter 9, 2%

- *Discussions:* The discussions will be worth 9% of the overall grade.

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

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

<u>Percent of Total Points</u>	<u>Grade</u>
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'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.

### **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 2022**

<b>DATE</b>	<b>DAY</b>	<b>EVENT / DEADLINE</b>
January 10	(M)	Start of Spring 2022 semester
January 17	(M)	Martin Luther King, Jr. Day observed (no classes held, campus closed)
January 21	(F)	Last day to drop a Spring 2022 full-term class for full refund
January 28	(F)	Last day to drop a Spring 2022 full-term class to avoid a "W" in person
January 30	(Su)	Last day to drop a Spring 2022 full-term class to avoid a "W" on WebAdvisor
February 18	(F)	Lincoln Day observance (no classes held; campus closed)
February 21	(M)	Washington Day observance (no classes held; campus closed)
March 11	(F)	Last Day to drop a full-term class (letter grades assigned after this date)
Apr 11 – April 15	(M-Th)	Spring recess (no classes held, campus open)
April 15	(F)	Good Friday observance (no classes held; campus closed) (classes reconvene April 18)
May 18		Spring 2022 final exam. 9:00-10:50 for 9:00 class 11:00-12:50 for 11:00 class By midnight for online classes.

**The final is a test. Be sure you plan to be there!**

## How to Send an Email to Mr. Gilmore

**Read the syllabus.** Often, the question you would like to ask has already been answered in the material I have provided for you.

**Use your Reedley College email through Canvas.** I am deluged with emails every day, and by using your school account, you'll have a better chance of avoiding the spam filter. Last semester I received about 800 emails from students.

**Your Subject line should be the class name and time of the class only.**

- Example: Math 11 8:00 AM

This information helps me organize and prioritize student emails. The section information is especially important since I often teach multiple sections of the same course.

**Always use a greeting.** Do not begin with "Hey" or similar colloquialisms. You should use "Dear Mr. Gilmore:"

**Briefly and politely state the reason you are emailing.** Offer only as much information as is relevant to the situation. Get to the point right away.

- Name the assignment or projects you are referring to instead of using pronouns or phrases, such as "this assignment".
- Example: Homework problem number 7 in section 7.1.

**If you are emailing with a problem, suggest a solution.** Be considerate, however, of how your solution might create additional work for me.

**Sign it with your name and your student ID number (but never your Social Security number).** Use your first and last name, even if you know that I know you.

**Your email should be professional.** It is important to use punctuation, capitalization, and complete sentences in all email correspondence to me.

The screenshot shows an email composition interface. The 'To' field contains 'Jim Gilmore'. The 'Subject' field contains 'Math 103 8:00'. Below the fields is a rich text editor toolbar with options for font face (Tahoma), size (10), bold (B), italic (I), underline (U), bulleted list, numbered list, indent, outdent, background color, text color, link, unlink, and a dropdown arrow. The email body text reads: 'Dear Mr. Gilmore: I will not be in class on Tuesday because I am not feeling well tonight. I will ask John Smoltz to take notes for me. I will also watch the video that is located in Blackboard and then do the assigned homework in CourseCompass. Greg Maddux 0123456'.

**Read it over.** If you do not have spell-check on your email, then you can copy the message, paste it into a word-processing program, and run spell-check there. Consider not only the mechanics, but also what you have said. Strive for a polite tone, concise language, and clear purpose.

- **Allow adequate time for a reply.** Follow up if more than a few days have passed and you have not gotten a response, then it is appropriate to politely ask if I received your email and had time to consider what you wrote.

If you are simply sending me information then I may not consider a reply necessary. In this case, you are done.

Example: "I have the flu and will not be in class on Tuesday, but Sue will turn my paper in for me."

**If your issue is not resolved then consider an office hour visit.**

Often the tone in emails cannot be properly judged. Rather than becoming upset, a visit in person can often remedy the situation.