

# Math11-Elementary Statistics

Course Syllabus-SPRING 2021 Section #59412

## Class:

Synchronous and Asynchronous: All class materials located on Canvas or google classroom.

## Instructor:

Mr. Garcia

## e-mail:

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**MyMathLab ID:** garcia15098

## Virtual Office Hours:

M, T, W & TH	9:00-10:00am
F	2:00-3:00pm

## Course Communication Policy:

When you log in to view your course content in Canvas, you will find a welcome announcement in the home page. In there you will find the Syllabus with a link and the MyMathlab instructions hand out with a link as well. Then under modules you will find a road map of the Online Math course broken down into modules. In each of the modules you will find directions on what to do each week. Make sure to carefully read the instructions and don't just rely on the calendar of events because you might miss critical details on each assignment.

I will be communicating with you via inbox Canvas messaging or via google classroom to inform you about important assignments, quizzes or exams. It is your responsibility to read each announcement to keep up with the course progression and don't follow behind this course.

I will be available via Confer zoom and my virtual office hours are shown above.

You can also reach me at [jose.garcia@reedleycollege.edu](mailto:jose.garcia@reedleycollege.edu) or at [jogarcia@dinuba.k12.ca.us](mailto:jogarcia@dinuba.k12.ca.us). I will respond to your concerns or questions within 24 hours Monday-Saturday. I may be able to respond to you on Sundays upon an opportunity but I don't promise anything. If you don't hear from me within 24 hours then resend your message via Canvas or email. Remember, this the best communication method to reach me.

There will be a discussion forum in Canvas so you can communicate with your classmates. It will be called "Math Thinkers forum Q & A". The purpose of this discussion forum is to post and answer questions that you might have as the semester progresses. We might possibly have discussion within Canvas modules to help you and learn from each other by expressing and sharing your unique ideas. I will check your posts frequently if common questions arise so I can answer them for you.

## Course information:

Welcome to Math 11, Elementary Statistics! Our section number is 59412. We meet in ZOOM Monday and Wednesday from 2:10 pm – 2:55 pm.

## 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:

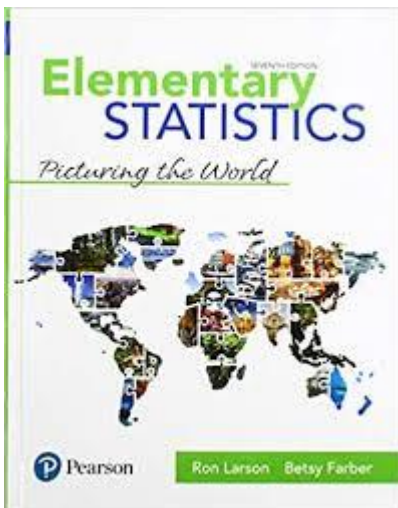
Math 103 or AB 705 Placement

## Credits:

4 units

## Optional Textbook:

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



## Student Learning Outcomes:

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

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

## 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: Frequency distributions and Graphs
2. Descriptive statistics: Measures of central tendency: mean, median, mode, measures of variation: variance, standard deviation, quartiles, range, relative position, 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, z-test for means and proportions, and 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
- TI-84 or PLUS (Can be checked out at Reedley College Library with your RC ID)

### **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 MyMathLab 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 on the weekly basis. **It is important to stay current to be successful in this course!** Each assignment has a due date and time. Any late assignment will receive credit based on the student effort.

### **Importance 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.

### **Tutorial Services:**

[The Math Center in the FEM](#) building at Reedley College

- 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.
- **Mr. Garcia's office hours M, T, W, & Th at 9a-10a and F at 2p-3p. To join and to use the zoom link use the google classroom code: bfemj6s**

### **Assignment 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. The purpose of this is to help you get your solutions written out so you can have a deeper understanding of concepts being learned.

### **Math Discussions:**

We will have a Math Thinkers Forum Q & A available for you on the weekly basis to post a question and answer any question that you might have regarding a topic or about his course. We might possibly have math discussion within Canvas to create a math learning community as well as to learn from each other and grow in our knowledge of math concepts. Your grade will depend on the requirements of your participation posts and each math discussion will be graded on a rubric or based on effort. This will go towards your quiz categories.

## Quizzes:

There will be online **weekly** homework assignments quizzes. These quizzes will be every two or three sections of content covered within a chapter. The quizzes will account for 10% of your grade.

## Attendance and Drop Policy:

Actively participation is one of the Key pillars of your success. Everyone can learn math, but don't do it alone! The first assignment for this course is to introduce Yourself via a short video using Flip Grid or any other recording program. Make sure to include the following information in your post. 1) Introduce yourself to the rest of your classmates including your name, how are you feeling, and be confident in sharing some personal information you would like us to know about you. 2) Explain in a brief summary what is your dream goal and what college you are planning to attend. 3) Share some of your insights about how you feel taking an online course verses a face-to-face course. What are your concerns? How confident do you feel in passing this class? How can you become successful in this Math course? Share your sincere opinions.

Your introduction video should be done no later than Monday of the first week at 11:59pm. If you don't do it then it will be considering a "no show" and you will be dropped from this online course.

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 for example) within the **first two weeks** of instruction will be dropped. MyMathLab 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 MyMathlab course by **fourth week**. Failure to do so will result in a drop from the course!

## Exams:

- There will be several chapter exams including Chapter 1, Chapter 2, Chapter 3, Chapter 4, Chapter 5, Chapter 6, Chapter 7, and content covered in Chapter 9 will be on the Final Exam. Also, the exams will cover one-chapter material.
- If you absolutely cannot take a test on the day of an exam is scheduled, you must discuss with me the possibility of taking the exam **early**. **Please send me an email so I can make the necessary changes and you don't get a zero.**

## Important Dates:

January 11, 2021	(M)	First day of school
January 18, 2021	(M)	Martin Luther King, Jr. Obs. (no classes held, on campus closed)
January 22, 2021	(F)	Last day to drop a Spring 2021 full-term class
January 25, 2021	(M)	Deadline to enroll in MML and complete the first assignments
January 29, 2021	(F)	Last day to register for a Spring 2021 full-term in person
January 29, 2021	(F)	Last day to drop a Spring 2021 full-term class to avoid a "W" in person
January 31, 2021	(SU)	Last day to drop a Spring 2021 full-term class to avoid a "W" on WebAdvisor
February 1, 2021	(M)	Deadline to permanently enrolled in MyMathLab
February 8, 2021	(M)	Lincoln's Birthday Obs. (No classes held, on campus closed)

<b>January 11, 2021</b>	<b>(M)</b>	First day of school
<b>February 12, 2021</b>	<b>(F)</b>	Last day to change a Fall 2020 class to/from Pass/No-Pass grading basis
<b>March 12, 2021</b>	<b>(F)</b>	Last Day to drop a full-term class (letter grades assigned after this date)
<b>February 15, 2021</b>	<b>(M)</b>	Washington Day/Pres. Day (No classes held, on campus closed)
<b>March 29-April 5, 2021</b>	<b>(TH-F)</b>	Spring Break (No classes held, on campus closed)
<b>May 17-21, 2021</b>	<b>(M-F)</b>	Spring 2021 Final Exams Week

**College Policies:**

**Behavioral 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 the rules for this course provided to you by the instructor in separate document and the school policies to ensure success in this course. I am looking forward to have a good semester with all of you!

**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 Scale:

Letter Grade	Percent Range	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%		

## Example:

If your 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.
- Note: To receive college credit you need at least 68% or C, or better to pass.
- **What is your goal for this course? My goal for this course is**

\_\_\_\_\_.

## **Late Work policy:**

It is important to stay current to be successful in this course. Each assignment will have a due date and time. I will be accepting any late assignment or project. However, for any assignments or project that is late you will receive credit based on your effort.

There will be online quizzes. In case of an emergency you missed a quiz deadline, personal emergency or internet connectivity issues you have to let me know so I can do a new extension.

For exams, I understand that we all have personal emergencies so for this case you may contact me via inbox Canvas or email notifying me why you are not able to take the test on due date and time. Please be sure to state in your message, Hello Mr. Garcia, or Good morning Mr. Garcia, Good afternoon Mr. Garcia, or Good evening Mr. Garcia depending on the time of day and start explaining your concerns or questions. I will get to you in a given opportunity and will consider your situation and will provide a reasonable extension according your situation.

For the discussion forums, there will be strictly deadlines with these ones because Math topics are going to be new for every discussion. Hence, your late post will not be accepted.

## **Course Schedule:**

(Subject to change)

**Week 1:** Introduction, Overview of the course, An Over view of Statistics, and Data Classification (Chapter 1)

**Week 2:** Data Collection, Experimental Design and Chapter 1 Test

**Week 3:** Frequency Distributions & their Graphs, More Graphs & Displays, and Measures of Central Tendency (Chapter 2)

**Week 4:** Measures of Variation and Measures of Position (Chapter 2)

**Week 5:** Chapter 2 Test and Basic Concepts of Probability and Counting (Chapter 3)

**Week 6:** Conditional Probability & the Multiplication Rule, The addition Rule (Chapter 3)

**Week 7:** Additional Topics in Probability and Counting, and Chapter 3 Test

**Week 8:** Probability Distributions and Binomial Distributions (Chapter 4)

**Week 9:** More Discrete Probability Distributions and Chapter 4 Test

**Week 10:** Introduction to Normal Distributions and Standard Normal Distribution, Normal Distributions: Finding Probabilities (Chapter 5)

**Week 11:** Normal Distributions: Finding Values, Sampling Distributions and the Central limit Theorem (Chapter 5)

**Week 12:** Normal Approximation to Binomial Distributions and Chapter 5 Test.

**Week 13:** Confidence intervals for Mean ( $\sigma$  known) and Confidence Intervals for the Mean ( $\sigma$  unknown) (Chapter 6)

**Week 14:** Confidence Intervals for Population Proportions and Chapter 6 Test

**Week 15:** Introduction to Hypothesis Testing and Hypothesis Testing for the Mean ( $\sigma$  known) and Hypothesis Testing for the Mean ( $\sigma$  unknown) (Chapter 7)

**Week 16:** Hypothesis Testing for Proportions and Chapter 7 Test

**Week 17:** Correlation and Linear Regression (Chapter 9)

**Week 18:** Cumulative Final Exam with Chapter 9 content covered

**Notice:** *This Syllabus is subject to change at the discretion of the Math instructor.*