Math 11 Elementary Statistics Spring 2021

Course Syllabus

General Information

Instructor

Veronica Andrade

Office

FEM 4A (Currently Only Online due to COVID-19)

Office Hours

Tuesdays and Thursdays 10:00 – 11:50, Wednesdays and Fridays 10:00 – 10:50,

I will connect automatically, click on this link during those times if you would like

to connect: https://cccconfer.zoom.us/j/98747301529

Class Times

 We will have one mandatory meeting (an orientation meeting) on 1/11/2021 at 9:00 AM. If you complete Unit 0 prior to 1/11/21 you DO NOT have to attend this meeting and you will NOT be penalized.

You have video lessons to guide you through the course (they are available on CANVAS) you need to watch and take notes when it is convenient for you but before the due dates. You must also complete the assignments in MyMathLab by the due dates. We will not meet regularly but I will be available for you, all you have to do is email me and we can set up a time to meet. Please don't hesitate to email me. I may also contact you from time to time especially if you fall behind.

Email

maria.andrade-romeo@reedleycollege.edu

Tutoring

 The math center is available. If you do not have the RC_Math Center on your CANVAS Dashboard (It has a tiger on the cover) please let me know and I will send a request to add you. This is the virtual Math Center and you go there to access tutors Monday-Friday 8:00 AM to 5:00 PM NO APPOINTMENT REQUIRED. Just go to the CANVAS course and you will see a drop-in tutoring schedule, you live tutors only a click away.

Prerequisites

Course Description

Math 11 is an introduction to statistical methods and techniques for business, behavioral, and social science majors. 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.

Text and Required Material

1. Triola, "Elementary Statistics" 13th Edition MyMathLab Access Card.
   The best and cheapest way to purchase the access card is
   with a credit card through CANVAS. If you purchase the
   18-week access code be sure to use the 14-day free trial
   first (Remember this semester has 19 weeks because of
   spring break not 18 weeks).

   You have two options. Option one purchase the MyMathLab Access Card only or Option Two Purchase BOTH the textbook AND the MyMathLab Access Card. In other words, the MyMathLab access card is required and the actual textbook is completely optional (older editions of the textbook are ok because the textbook is not required).

2. Calculator (does not have to be a graphing calculator but if you can get a graphing calculator without purchasing one such as checking one out from the library or borrowing one then get one. Otherwise get an inexpensive calculator.) and/or Excel which is available to you through your email.

Reasons for which you may be dropped

I may drop students at any time starting on Monday January 11th through Sunday March 14th. Here are the reasons for which you may be dropped:

1. You may be dropped if you have <u>not signed up for MyMathLab by Tuesday January 12th at NOON. You may use the 14-day free trial to sign up</u>. Definitely use the 14-day free trial if you are going to purchase the 18-week code because remember that this semester has 19 weeks because of spring break. Make sure that you sing up through the CANVAS website. From CANVAS you will go to "My Lab on mastering" on the left hand side, DO NOT go directly to the Pearson website. This means that <u>I will NOT give you a course ID. When you sign up through CANVAS MyMathLab will automatically know what course you need to enroll in</u>.
2. You may be dropped IF YOU HAVE NOT PURCHASED the access code by Wednesday January 27th at NOON.
3. You may be dropped if you have TWO or more consecutive missing assignments at any point within the dropping period.

   NOTE: If y<u>ou</u> want to drop the class, make sure that you do so on Webadvisor, do not depend on me to drop you.

Important Dates

1/22/2021: Last day to drop for a full refund.
1/29/2021: Census-Last day to add a class or drop a class to avoid a "W"
3/12/2021: Final drop deadline, a letter grade will be assigned after this date
5/12/2021 : Final Exam Due

Grading

Grade	Range
A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	0 – 59%

Grade Category	Weight
Tests	70%
Quizzes, Activities	10%
Homework	20%

YOUR GRADE IS THE GRADE ON THE CANVAS GRADEBOOK (NOT THE GRADE IN MYMATHLAB)

Tests and Quizzes

You may not give or receive help for a test or a quiz.

Academic Dishonesty

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 the 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.

Students with Disabilities

If you have any special needs addressed by the American Disability Act and need course materials in alternate modes, or alternate testing circumstances, it is your responsibility to notify me as soon as possible. Upon notification, immediate reasonable efforts will be made to accommodate your special needs.

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 dispersion.
2. Apply concepts and terminology of statistics.
3. Implement the rules of probability.
   - Apply mathematical models to real world situations
   - Demonstrate the ability to use symbolic, graphical, numerical and written representations of mathematical ideas.
   - Use critical thinking of mathematical reasoning to solve a variety of problems.
4. 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 the course, the student 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 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

Disclaimer

Ms. Andrade-Romeo reserves the right to make changes to the syllabus with whole class notification.