Math 11-95018

Introduction to Statistics

Fall 2021
Course Syllabus

Hi, and welcome to Math 11, I want to start by letting you know that I am here to support you as you go through this course. You will be challenged in this class but you can reach out to me and we have lots of resources for you. I want to welcome ALL of you right now to reach out to me whenever you have a question or need of help. College is NOT meant to be done alone, we all had help. To support you in this class you will have my office hours, you can ask to make an appointment if my office hours do not work for you, you will have an embedded tutor and you can make an appointment with them as well and they also have drop-in hours, you have the math center available to you with live tutors available Monday-Friday 9am to 6pm NO APPOINTMENT NECESSARY, and I will have you all form mandatory study groups. I may also contact you via email, especially if you fall behind.

General Information

Instructor
Veronica Andrade

Office
Math and Science room 131 (Currently Only Online)

Office Hours
Mondays and Thursdays: 9:00 – 9:50, Mondays and Tuesdays 11:00 – 11:50: I

will connect automatically on these days and times, click on this link during

those times if you would like to connect:

https://scccd.zoom.us/j/95629653407

Class Times
 We will have one mandatory meeting (an orientation meeting) on 8/09/2021 at 3:30 PM. If you complete Unit 0 prior to 8/09/2021 you do NOT have to attend this meeting and you will NOT be penalized. It is only mandatory for those who do not complete Unit 0, the meeting is to help you get started. If you DO NOT complete Unit 0 prior to 8/09/2021 here is the link to the meeting at 3:30 https://scccd.zoom.us/j/98605671690, the meeting is to help you get started.

You have video lessons to guide you through the course (they will be 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 by the due dates. We will not meet regularly but I will be available for you, all you have to do is email me, or visit me during my office hours.

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 go to Unit 0 and there are instructions there on how to self-enroll. If you need help please email me. This is the virtual Math Center and you go there to access tutors Monday-Friday 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

Introduction to Statistics is the study of the use of probability techniques, hypothesis testing, and predictive techniques to facilitate decision-making. Topics include descriptive statistics, probability and sampling distributions, statistical inference, correlation and linear regression, analysis of variance, chi-square and t-tests, and applications of technology for statistical analysis including the interpretation of the relevance of the statistical findings. Applications include data from a broad range of disciplines.

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. (I recommend you
    first use the 14-day free trial to sign up and then
    purchase by 8/25)

    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, I also recommend that you only purchase the MyMathLab access card since it comes with a digital version of the book).

2. A graphing Calculator (you can check one out from the library if you go ASAP) or Excel (I believe you have Excel available through your email). If you are going to use Excel then you also want to have a simple scientific calculator. I do not recommend buying an expensive calculator try to check one out if you cannot get your hands on a free one then use excel I have videos on how to use excel and the calculator.

Reasons for which you may be dropped

I don't like to drop students but from time to time I have had to, here are the reasons for which you may be dropped:

1. You may be dropped if you have not signed up for MyMathLab by Tuesday August 10th. You

may use the 14-day free trial to sign up. Make sure that you sing up through the CANVAS website. From CANVAS you will go to the Pearson website, but DO NOT go directly to the Pearson website. This means that 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.

2. You may be dropped IF YOU HAVE NOT PURCHASED the access code by Wednesday August 25th.
3. You may be dropped if you have TWO or more consecutive missing assignments at any point within the dropping period.

    NOTE: If you want to drop the class, make sure that you do so on Webadvisor, do not depend on me to drop you.

Important Dates

8/20/2021: Last day to drop for a full refund.

8/27/2021: Census-Last day to add a class or drop a class to avoid a "W" (8/29 on Webadvisor)
10/08/2021: Final drop deadline, a letter grade will be assigned after this date
12/03/2021 – Final Exam Due
12/08/2021 – Last Day to turn in ANY LATE work

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.

Instruction

I will post the readings and video lessons in CANVAS, please go to the CANVAS homepage and click on the sections to do the readings, watch the videos and take notes. The assignments will also be on CANVAS

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, do 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. Calculate and interpret measures of central tendency and dispersion.
2. Calculate basic probabilities.
3. Calculate, interpret, and analyze probability distributions and confidence intervals.
4. Calculate, interpret, and analyze hypothesis testing.
5. Calculate, interpret, and analyze correlation, regression, and analysis of variance.

Course Objectives

In the process of completing the course, the student will:

1. Interpret data displayed in tables and graphically
2. Apply concepts of sample space and probability
3. Calculate measures of central tendency and variation for a given data set
4. Identify the standard methods of obtaining data and identify advantages and disadvantages of each
5. Calculate the mean and variance of a discrete distribution
6. Calculate probabilities using normal and t-distributions
7. Distinguish the difference between sample and population distributions and analyze the role played by the Central Limit Theorem
8. Construct and interpret confidence intervals
9. Determine and interpret levels of statistical significance including p-values
10. Interpret the output of a technology-based statistical analysis
11. Identify the basic concept of hypothesis testing including Type I and II errors
12. Formulate hypothesis tests involving samples from one and two populations
13. Select the appropriate technique for testing a hypothesis and interpret the result
14. Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics
15. 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.