Project: Statistics Collection and Analysis
Math 161: 2017-2018

The project includes 5 parts:

1. Create a typed survey and administer the survey to 50 or more different people.
2. Calculate a mean, median, and mode from the data.
3. Calculate a standard deviation and variance from the data.
4. Create a poster board with either a histogram or circle graph that demonstrates your data. The graph must be created by hand, and may not be computer-generated.
5. Write two papers. Each paper is to be two to four pages long (typed, double spaced, New Time Roman font 12, 1 inch margins). Please note that any heading information may not be included in the calculation of the number of pages.

1. Create a survey and administer the survey to 100 or more different people.

- The survey must be approved before it is administered. The survey will be shared with your classmates on Blackboard.
- Turn the survey in on Blackboard on or before the survey due date so that you receive useful feedback about the survey questions before you administer the survey.
- The survey must contain at least two different questions that are related to one another.

> **One question** *must have four to six non-number answers to choose from (example: Choose your favorite ice cream flavor from among this list: Vanilla, Cherry Garcia, Chocolate, Strawberry, Blueberry, Spumoni)*

> **One question** *must have a number answer. Do not use a range for your answer choices, as this will make some of the calculations difficult.(example: How many times a month do you eat ice cream?). The question should be open-ended.*

- The survey must also collect some type of information about the survey participant such as age, grade level, gender, etc.
- The survey must be typed, but it can be given electronically or on paper.

2. Calculate a mean, median, and mode from the data

This will be done with the data that is a number answer. Show all the work and write your final calculations on the "Calculation Sheet".

3. Calculate the standard deviation from the data.

This will be done with the data that is a number answer. Show all the work and write your final calculation on the "Calculation Sheet".

4. Create a poster board with both a histogram and a circle graph that demonstrates your data.

- This will be done with the data that is not a number answer (not the demographics data – use the survey question data).
- The poster board should be a standard poster board size (approximately 22 in x 28in).
- The two graphs must be created by hand and should not be computer generated.
- The circle and its angles must be accurate: use something to measure the angles and use something to draw a perfect circle. (For example, you can use string and a pin to ensure you have a perfect circle or you can trace an object). You will need to convert the percentages to angles using the fact that a circle has a total of 360 degrees.

- Do you know how to create a histogram? Use online resources to find the specifics. HINT: the bars should be touching one another and should be the same width. Use a straight-edge.
- For full credit, use color and make sure your work looks like college-level work. (Unless you have an artistic purpose to do otherwise, stay away from crayons).
- A quality poster board will make use of most of the space.
- Include neatly written **titles** and **scales**.

5. Write a two to four page paper with four or more paragraphs

- Typed, Double spaced, *New Time Roman* font **12**, 1 inch margins
- There should be at least two pages of text not including your heading or other extra information.
- The paper should be narrative rather than bullet-pointed and must cover each of the following:
  a) An explanation/description of the data collection process. For example, what sampling technique did you use and why? How did this affect your data?
  b) Why did you choose this topic?
  c) Who did you survey? Why? Do you feel that the group you surveyed is a good representative group for this question? Why or why not? What was difficult or easy about this data collection?
  d) An explanation of what the mean, median and mode reveal about this particular data
  e) An explanation of what the standard deviation reveals about this particular data
  f) Who would be interested in this data?
  g) If you were to start this project over, what might you change in your survey?

6. Write a two to four page paper with six or more paragraphs titled "Sampling Techniques"

Refer to section 13.1 in the textbook to complete the questions on the sheet.

- Typed, Double spaced, *New Time Roman* font **12**, 1 inch margins
- There should be at least two pages of text not including your heading or other extra information.
- The paper should be narrative rather than bullet-pointed and must cover each of the following:
  a) Write one paragraph for each of the following sampling techniques:
    Random, Systematic, Cluster, Stratified, and **Convenience**.
      a. For each technique, how could you have carried out the given technique with your survey? Be specific.
      b. For each technique, how would your findings have been more enriched by using the given technique?
      c. For each technique, what would have been the drawbacks and benefits of having used that technique?

  b) Which technique did you actually use for your project?
      a. Describe how you used this technique?
      b. Why did you use this technique?
      c. How did your sampling technique affect your data? For example, is your data skewed by your collection process?

Math 161 Project: Statistics Collection and Analysis
Grade Rubric

	Pts Possible	Your Score	Comments
Survey	(10)		
Directions	9		
Appearance	1		
Calculations Accuracy and Completion	(20)		
Papers	Sampling Techniques (20)		
	General (25)		
Content	Sampling Techniques (15)		
	General (20)		
Grammar, etc	Sampling Techniques (5)		
	General (5)		
Poster	(25)		
Directions	5		
Accuracy	15		
Appearance	5		
Final Grade	(100)		

Name_____

Project Calculations

Mean	Median	Mode	Standard Deviation

<u>Checklist of Items to Turn in:</u>

- A printed copy of your survey
- This page
- A printed copy of your paper
- Your shown work for calculations
- Poster board
- 2 Written papers