Foundations 11 Final Project: Statistical Appreciation

The Details:

- You have the opportunity to either work by yourself or with a partner
- You are responsible for creating a survey and collecting 50 responses
- Your survey must contain 10+ good* questions
  * Definition of good to be discussed in class (include "other", no bias, …)
  * At least one question must have a range of numerical answers, for stats.
- Working with the Rubric provided, prepare a 5 to 10 minute presentation including representing your data using graphs & statistical methods where appropriate

The Presentation:

- All presentations are due: _____
    - All class members are expected to pay full attention during a presentation and participate in the question period after a presentation.
    - See below as well as the rubric for the project expectations

- Research question and hypothesis (your guess as to the answer to your research question).

- Analysis of the data/Discussion –
    - Use Ch 5 Statistics to represent your data: see rubric for details.
    - Interpret your data. Explain what your data means in terms of your research question.
    - Was your research question appropriate? Was it too broad or too specific?
    - Why is your research significant?
    - Explain why you chose the sampling method you did. Is your sample representative of the greater population?
    - Was your data collection method appropriate?
    - Were there any issues that arose during your data collection that may have influenced your findings? Was there bias?

- Conclusion – Summarize your findings.
    - Was your hypothesis supported or not?
    - Does the data answer your question or do you need to do further research?
    - What are the limitations of your findings?

General Outcome: Develop an appreciation of the role of mathematics in society.

1.1	Collect primary or secondary data (statistical or informational) related to the topic.
1.2	Assess the accuracy, reliability and relevance of the primary or secondary data collected by:
	• identifying examples of bias and points of view
	• identifying and describing the data collection methods
	• determining if the data is relevant
	• determining if the data is consistent with information obtained from other sources on the same topic.
1.3	Interpret data, using statistical methods if applicable.
1.4	Identify controversial issues, if any, and present multiple sides of the issues with supporting data.
1.5	Organize and present the research project, with or without technology.

Statistical Specific Outcomes

General Outcome: Develop Statistical Reasoning.

1.1	Explain, using examples, the meaning of standard deviation.
1.2	Calculate, using technology, the population standard deviation of a data set.
1.3	Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry and area under the curve.
1.4	Determine if a data set approximates a normal distribution, and explain the reasoning.
1.5	Compare the properties of two or more normally distributed data sets.
1.6	Explain, using examples that represent multiple perspectives, the application of standard deviation for making decisions in situations such as warranties, insurance or opinion polls.
1.7	Solve a contextual problem that involves the interpretation of standard deviation.
1.8	Determine, with or without technology, and explain the z-score for a given value in a normally distributed data set.
1.9	Solve a contextual problem that involves normal distribution.

	(It is intended that the focus of this outcome be on interpretation of data rather than on statistical calculations.)
2.1	Explain, using examples, how confidence levels, margin of error and confidence intervals may vary depending on the size of the random sample.
2.2	Explain, using examples, the significance of a confidence interval, margin of error or confidence level.
2.3	Make inferences about a population from sample data, using given confidence intervals, and explain the reasoning.
2.4	Provide examples from print or electronic media in which confidence intervals and confidence levels are used to support a particular position.
2.5	Interpret and explain confidence intervals and margin of error, using examples found in print or electronic media.
2.6	Support a position by analyzing statistical data presented in the media.