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Statistics Project – Expectations

Name: _____ **Due Date:** _____

- Your Statistics Project will consist of researching one and two variable data to answer a topic question, which you will create. There are two parts to the project: a written report & a presentation.
- ***The written report is to be completed in Microsoft Word and all mathematical calculations are to be completed in Microsoft Excel. Both files are to be submitted electronically through the hand-in folder.***

Written Report Format

Your report should have the following headings and each bullet should be contained under that heading:

Title Page (1 page)

- Include **title of your project**, **your name**, **my name**, **course code** and **due date**.
- Straight forward; clear, concise, to the point.

Table of Contents (Approx. 0.5-1 page)

- Listing of each section in your project.
- Using main categories with sub-categories could be useful.

Introduction (Approx. 0.5-1 page)

- A paragraph describing the **purpose** and **focus** of your statistics project as well as **why** you chose this topic.
- Introduce your **main topic question**. Be general to allow for as many possible sub-questions as possible. For example,
  - Why do teenagers pay so much for car insurance?"
- Introduce some **sub-questions** that you will use to help you research your main topic question. The problems may evolve slightly throughout the life of your project. For example,
  - What is the relationship of death rates for various age groups?
  - What is the relationship between collisions and various age groups?
  - What is the relationship between insurance rates and age?
- Make a **hypothesis** as to what the outcome of your research will be. This is just an educated guess, so it is acceptable if you end up proving yourself wrong by the end of the report.

Analysis (Approx. 5-10 pages)

- **Measures of Central Tendency**
  - Mean, median and mode must be **calculated** at least once each in your excel file.
  - At least **two** measures of central tendency must be **used** for a purpose and **explained** in report.
- **Measures of Spread**
  - At least **four** measures of spread (standard deviation, variance, IQR, z-score, percentiles) must be **calculated** in your excel file and **used** for a purpose with an **explanation**.
- **Correlation Coefficient, r**
  - At least **one** line of best fit must be used on a scatter plot and **visually classified**.

- Correlation coefficient, r, is used at least **once** to analytically classify a linear correlation.

- **Linear Regression and Interpolation/Extrapolation**
  - Least-squares method must be used at least **once** to find a linear regression equation.
  - At least **one** interpolation or extrapolation must be made and **explained**.
- **Variables**
  - As variables are used/manipulated throughout your report, you must **describe** them as discrete, continuous or categorical and **identify** which variables are independent or dependent.
  - Variables should also be **labeled** on each graph correctly.
- **Cause and Effect**
  - The relationship/factor (cause and effect, common cause factor, reverse cause-and-effect relationship, etc.) between at least **one** pair of variables must be **identified** and **explained** fully.
- **Graphs**
  - Multiple **scatter plots** as well as at least **one** other type of graph (minimum) must be used throughout the report.
  - Be sure to only include graphs which you discuss in the report & serve a purpose.

Conclusion (Approx. 0.5-1 page)

- Draw conclusions by summarizing your findings and **directly relate** them to your main topic question and sub-topic questions.
- **State** whether your **hypothesis** was correct or incorrect with **justification**.
- Note at least **one** bias which could have arisen through your study and **identify** with **justification** (sampling, non-response, measurement, response, etc.).

Appendices Excel File (# of pages depends on amount of data collected)

- Your separate Excel file used to collect all of your data, calculate, graph and analyze will be submitted at the same time as your written report.

Works Cited (1 page)

- Cite all of your information using the MLA format. A summary of the MLA format can be found at: http://owl.english.purdue.edu/owl/resource/557/01/
- Be sure to correctly cite all of your data throughout your report to avoid plagiarism issues.

Presentation Format

- You will have a 5-7 minute window to present your project. You will be marked accordingly.
  Note: Time it when you are practicing. You will lose marks and possibly be cut off if you go over the time-limit.
- Your presentation will be marked in two areas:
  1. Verbal Summary of Problem & Conclusions
  2. Visuals Presenting Data
- Pick out the most important sub-questions from the written report and explain them to the class.
- You may wish to add interest to your presentation by using Powerpoint, the Smartboard Notebook program or another piece of software.