Project Assignment 5 (Video Presentation & Mini manuscript)

Due: Latest Wednesday 24th May 2023 @ 12:00 noon on Canvas.

This project is divided into two (2) main parts:

- Academic Presentation (Pre-recorded video)
- Final write-up (Mini Manuscript)

Grading

Project Assignments 1 to 4 were graded on completion and effort. However, every section of Project Assignment 5 will be graded on the quality of content. You will **NOT** be graded on the basis of finding a statistically significant association, but rather on telling a clear and compelling story about your original research using the conventions of statistical communication and demonstration of understanding on basic statistical concepts.

A. Academic Presentation (Pre-recorded Video)- 5%

You are required to prepare a 7-minute (maximum) video presentation of your work. This presentation should aim at telling the story of your research to an academic but non-expert audience. In other words, you may assume the audience know and understand concepts in statistics such as test statistics, p-value, the intent of a literature review, etc., but are not experts in relation to the particular topic of your research, e.g. Governance in African, politics in Europe, the connection between alcohol abuse and depression, or the views of Ghanaians on government corruption, etc.

General Advice on the Poster

Your presentation should consist of a title/author page and 9 PowerPoint slides with voiceover (7-minute maximum). All videos should then be uploaded to YouTube and the corresponding links shared on canvas.

One of your objectives in preparing the video presentation should be to grab and keep the viewer's attention so that they will stick with you and take in your research message. An intriguing title can help, but the most effective poster presentations are simple and easily digested, with well-formatted slides, clear headings, and minimal visual distractions. Sentences and paragraphs should be short and font sizes not too small.

Reasons why your poster may fail:

- Too much text
- Unclear content due to missing information
- Poor graphs: incomprehensible titles, codes instead of category names, small lettering, cryptic captions, missing labels, etc.
- The presenter cannot convincingly interpret the outcomes of the analysis and/or the bivariate graphs
- Information overload

Successful posters tell a compelling story. Before you begin, try to formulate your message – the essence of what you want to present – in a single sentence. This exact sentence probably won't appear on the poster itself, but it should be your guiding light in deciding what to include and where. Your title and conclusion can be derived directly from this sentence.

Required Elements:

Each poster will consist of a title and 9 PowerPoint slides with voiceover (7-minute maximum).

1. **Title.** Here are two examples of good titles:
    - Is social media use associated with civic engagement among Ghanaian youth?
    - Do experiences of corruption predict livelihood factors in ECOWAS countries?

    NOTE that the study population is included in the title.

2. **Introduction**. The introduction should accomplish the following:
    a. Introduce the topic and state why it is of interest. What problem or puzzle does your research address? Why was it of interest to you and why should others care?
    b. Give highlights from the review of the literature. What have other researchers found about the topic? Use **APA in-text citation** format, including page numbers for direct quotes! **Minimum three citations from peer-reviewed journal articles**. Highlights from the literature review can be in either paragraph or bullet form.
3. **Research Question(s)**. Give the overall research question that guided your study, and then, in a numbered list, state between one and three associations that your research formally tested. Each statement should be in the form of a question. Be very precise about what was measured and tested and for what population. For example:
    - Is there an association between smoking quantity and symptoms of nicotine dependence in young adults?
    - Does the association between smoking quantity and nicotine dependence differ for young adults with or without a psychiatric disorder? [This is an example of moderation.]
    - Is there an association between perceptions of attention by parents and how often an adolescent feels lonely?
2. **Methods.** The methods section requires three sub-headings indicated in bold below. Font can be smaller than for the Introduction section.
    a. **Sample.** Describe the sample. Who produced the data? When was the data collected? What type of sampling was used? Is the sample nationally representative? Which country? What are the ages of respondents? Did you further subset the data? What was the sample size, or if you only used a subset, what was the size of your subset?
    b. **Measures**. How were variables measured? In other words, what was the question that was asked and what were possible responses? For example:
        - "age was measured in years," or "age was categorized into 5-year bands," or "age was collapsed into two categories: youth (15 to 24 years) and adult (25 to 49 years)."
        - Perceived economic condition was measured by the question "In general, how would you describe the present economic condition of this country?" Response categories included: very bad, fairly bad, neither good nor bad, fairly good and very good. Responses were then collapsed into three levels: bad, neither and good.
        - HIV knowledge was measured by calculating the number of correct responses to five basic questions about HIV. The five questions were: (list the questions)
        - Academic performance was measured by an average grade across four subjects: Math, Science, English and Social Studies. For each subject, an A grade was coded 1, a B grade was coded 2, a C grade was coded 3, and D and below coded 4.
    c. **Inferential tests**. State the inferential tests used in the study (between 1 and 3) and give the null and alternate hypothesis. For example:

i. A chi-square test of independence was used to test the association between HIV knowledge score and educational attainment.
H_0: There is no association between HIV knowledge score and educational attainment, they are independent.
H_a: There is an association between HIV knowledge score and educational attainment, they are not independent.

ii. An ANOVA test was conducted to test the association between **mean** HIV knowledge score and five-year age categories.
H_0: Mean HIV knowledge scores are equal for all age categories
H_a: Mean HIV knowledge scores are not equal for all age categories

iii. A Pearson correlation test was conducted to determine if there is a linear relationship between HIV knowledge score and age in years.
H_0: There is no linear correlation between HIV knowledge score and age, $r = 0$.
H_a: There is a linear correlation between HIV knowledge score and age, $r \neq 0$.

3. **Results**. For each association tested, include the following:
    a. Bivariate graph with clear and accurate title and appropriate labels
    b. Bivariate summary statistics (from step 2 of the hypothesis test)
    c. Report test statistic, degrees of freedom, p-value, r and r-squared as appropriate (from step 3 of the hypothesis test)
    d. State the conclusion of the hypothesis tests in context. Add additional conclusions based on post-hoc test or calculation of the slope of the regression line. Comment on the effect size if relevant. Below are examples:
        - ANOVA revealed that among daily, young adult smokers, number of cigarettes smoked per day (collapsed into 5 ordered categories) and nicotine dependence were significantly associated, F = 11.79, p-value = 0001. Post hoc comparisons of mean number of nicotine dependence symptoms by pairs of cigarettes per day categories revealed that those individuals smoking more than 10 cigarettes per day (i.e. 11 to 15, 16 to 20 and >20) reported significantly more nicotine dependence symptoms compared to those smoking 10 or fewer cigarettes per day (i.e. 1 to 5 and 6 to10). All other comparisons were statistically similar.
        - When examining the association between lifetime major depression and past year nicotine dependence, a chi-square test of independence revealed that among daily, young adult smokers, the proportion of those with past nicotine dependence who had experienced major depression (26.2%) was ***statistically similar*** to those without past year nicotine dependence (22.7%), $X^2 = 2.3$, df = 1, p-value = 0.1234.
        - Among parents and adult children, there is strong evidence of a moderate positive linear relationship between the parents' average height and the height of the adult child (r=0.459). The statistical evidence further suggests that the parents' average height accounts for about 21% (r^2=0.2105) of the variation in the height of the child. For every 1-inch increase in the average height of parents, the height of the child increases, on average, by 0.65 inches.
4. **Moderation** graphs and conclusions (OPTIONAL)
5. **Discussion**. Write your discussion points in short, clear statements, preferably as a list. Return to the larger font of the Introduction. Address the following:
    a. In non-technical terms, what was learned about the overall research question?
    b. *Speculate* about what MAY account for the result. Draw on the literature review here, don't just pull something out of a hat.

- If the results are statistically significant, are they also practically significant (practical significance relates to the effect size – differences between category proportions or category means, or the slope)? What causal mechanisms *MAY* be underlying the association?
- If the results were not statistically significant, speculate about a reason: there truly is no association, there are confounding variables, sampling or survey design issues, etc.

c. Can the results inform policy?
d. What are the study's limitations?
e. Offer suggestions for further research.

NOTE 1: observational research never "proves" an association or a non-association definitively because a Type I or Type II error could have been made. Use language like "the results suggest that…" or "sample data indicate that…"

NOTE 2: observational research can only speculate about causal mechanisms. Use words like "it may be that" or "a possible cause could be" or "a possible explanation for the association could be"

NOTE 3: avoid making conclusions that are not directly related to your research findings! Try to connect conclusions to the literature review. Are the outcomes of your study consistent with the findings of others? Or do they call the findings of others into question?

6. **References**. Three to five academic sources (minimum 3 peer reviewed journal articles). Cite the source of the secondary data. Small font but readable. **Verify proper APA format!**

Submission Guidelines:

1. **Upload your presentation to YouTube and upload the link to the YouTube video to canvas by 12:00 noon Wednesday 24th May, 2023**.

2. PowerPoint slides (10 max, including title/author slide) with voice recording (7 minutes max)

B. Final write-up (Mini Manuscript)-15%

Your final write-up should have the following components:

- **Introduction and Background**

The introduction builds your case for doing the project. Think of the introduction as a narrative of what it is you want to do, written in a few paragraphs. Within those paragraphs, it is important to briefly answer the following questions

i. What is the central research problem?
ii. Why is it important to undertake this research?
iii. What is the significance of your research?

The background of the study should include review of existing literature (not less than 3) on the area of your research, leading to your topic. Discuss the contribution of your research in the field of the study. Clearly state the gap your study will addressed.

- **Materials and Methods**
  In this section, state the overall research question(s) that guided your study, and also state 2-3 associations your research formally tested. Provide detailed information about the sample under study (include information on; sample size, study setting, the source of the data, etc.). List and describe all variables used in the research. Clearly differentiate between the explanatory and the response variables. Clearly described how the variables were used in the research were measured. Furthermore, describe the statistical methods/procedures employed to analyze the data. Justify why you employed those statistical methods. If there are any underlying assumptions those procedures need to satisfy before their usage, clearly state them.

- **Analysis and Results**
  Provide and explain the results of your data analysis. Your results should include both univariate and bivariate results. Highlight key findings from your analysis.

- **Discussion, Conclusion and Recommendation**
  For the discussion section summarize the study findings briefly. Place your results in context of existing literature on the topic, and describe why they are important. The discussion should not simply be a review of the literature. Focus on studies related directly to your project. Consider implications for policy. Additionally, comment of the limitation(s) of your study. Provide your concluding statement. Stick to conclusions that are directly supported by your results. Finally, provide some suggestions for future studies.

- **References**
  Provide a list of all references cited in the work. Use the **APA referencing style.**

Further Instruction:

- The cover page should bear the **title of the project**, **your name and student ID**, **the course name**, **the semester and year**, and **the Ashesi logo**.
- The theme font should be Times New Roman
- The font size should be 12, the spacing should be 2.0, and the alignment should be justify.
- The number of pages should not exceed 15.
- Manuscript should be submitted in pdf format.

NOTE 1: Your instructors will use **Turnit-in** to check for plagiarism, so your plagiarism level should not exceed the allowable threshold in Ashesi. All heavily plagiarized work will be referred to the AJC.

NOTE 2: Late submission will not be accepted. Please adhere strictly to the deadline.

NOTE 3: All submission **MUST** go through canvas. Any submission by email will **NOT** be accepted.