

EVALUATION

1. PROPOSAL(15%) – due 5PM 13th May, 2022

Your goal is to hand in a proposal giving me enough details about what you want to do in your project, so that I can give you feedback before you set out to complete it.

Your proposal is worth 15 points. It should consist of the following sections:

- **Research question:** What is your research question? This should be something you are genuinely interested in! Then provide a sentence or two explaining why you are interested in this question.
- **Background research:** complete with a minimum of **three** relevant resources
- **Sampling and experimental design:**
 - **Variables:** What are the one or two variables you will be studying?
 - **Type of study:** Observational study or experiment? Explain.
 - **Data collection:** How was the data collected? Include the citation for your data, and (if available) link to the source.
 - **Scope of inference:** Can these data be used to establish causal links and/or can findings be generalized to the population at large?
- **Exploratory data analysis:** Perform relevant descriptive statistics, including summary statistics and visualization of the data. Think about what conditions you might need to check for your analysis or what summaries of the data might be useful for answering your question. Perform simulations and test procedures to support your findings.
- **Group task assignments and timeline.**
- **Data:** Print out 1 page of your data set and attach it to your proposal. If your data fits in one page, great. If you have too many observations and it won't fit, that's ok too. I just want to get a sense of your data set, I do not need to see all rows. However your print out should contain all relevant columns (this shouldn't be an issue since you are working with one or two variables for your project).

Format & length

Your proposal should be at most 1000 words. Keep it brief as the information on this document will eventually make it into your project. If you make it too long you'll end up having to cut it down later.

Submission

Proposals are due at 5pm on 13th May, 2022. You are required to hand in a pdf version of your proposal. Late work policy applies (10% off for every 24 hours late). I will have feedback to you by 19th May, 2022.

2. PROJECT REPORT (45%) – due 5pm 20th May, 2022.

Your goal is to submit a project report that conveys that you have mastered statistical inference techniques for comparing 2 populations OR chi squared testing procedures OR inferring the slope of regression line we have learned in class and that helps you answer your research question.

Your project should be a write up in the form of a research paper. Topics to cover in your presentation:

A. INTRODUCTION, PROBLEM, PURPOSE

The statement of your question, a statement as to why your project is important, relevant, or interesting; and your null and alternative hypotheses. Also discuss what you expected to find.

B. RESEARCH

Summary discussion of your background research and information on a minimum of three related studies. Remember to tie your research to your hypotheses and your data analysis.

C. METHODS AND PROCEDURES

- How your data were collected (sampling method/treatment assignment/etc.) or research done to collect your data. Be specific. Remember to document all items that need to be cited.
- Inference: Check conditions, theoretical inference (if possible) / Simulation-based inference (if theoretical not possible), hypothesis test and confidence interval;

Note: If your data fails some conditions and you can't use a theoretical method, then you should use simulation. It is your responsibility to figure out the appropriate methodology, but feel free to ask me. Be sure to interpret your findings in context of the problem.

D. RESULTS (ANALYSIS OF DATA)

Perform relevant descriptive statistics, including summary statistics and visualization of the data. Also address what the exploratory data analysis suggests about your research question.

E. PROBLEMS IN THE PROJECT/SUGGESTIONS FOR FUTURE

Any difficulties that occurred when collecting or analyzing data, as well as what you would change in a follow-up to your project. Limitations of your inferences should be discussed. Suggestions for further work in the area of your topic, as well as any recommendations.

F. CONCLUSION

Summarize your findings without repeating your statements from earlier. Also include a discussion of what you have learned about your research question and the data you collected. Remember who is your population of interest.

Format & length

Your write up should be at most 10 pages (including figures and calculator or software procedures) and submitted as a Word document or pdf. This is not very long, so you will need to be concise. Figures may be inserted into the body of the report (preferred) or in an appendix. I prefer single-spacing, but double-spacing is also acceptable.

Submission

The report is due at 5pm on May 20th, 2022. You may hand in a Word document and a printed copy of your report. Late work policy applies (10% off for every 24 hours late).

3. Project Presentation (20%) – in class 23th May to 27th May, 2022

An important aspect of doing research is taking time to share your findings with others. On May 23-27, we will give everyone 8-10 minutes to share their project and summarize their findings. Everyone who presents their research will be given full points.

The presentation should briefly describe the research question, the data involved, the analysis performed, and the conclusions drawn from the analysis.

4. Peer Evaluation (20%) - due 5PM, May 27th, 2022

See appendix.1.

Appendix.1 Peer Evaluation Form

Name (DO NOT rate on yourself)	Scores (0=lowest, 5=highest)				Total Rating
	Attends meetings and completes group assignments on time	Contributes significantly to the project report	Preparing slides and delivering presentation	Demonstrates a cooperative and supportive attitude	

$$\text{Your score} = \frac{\text{your total rating}}{\sum \text{total rating of your group}} * 20 * n$$