**Stat 011**

**Final Project**

Your final project will consist of a 5-10 minute digital Zoom presentation. Similar to how I’ve been releasing lecture videos, you will record yourself (audio only) presenting a digital file. You may switch between the poster file and the Zoom whiteboard. You will submit two files: a recorded movie file and a PDF poster file.

For your project, choose something that interests you and broadly fits into one of the three categories below:

1. **A research report on a topic that interests you.** This could be a topic we have touched on in class, or something you learned about in another class or through your own reading or experience. Such a project might involve reading articles in journals, newspapers, magazines, and books; summarizing and discussing the statistical issues involved; and drawing conclusions. Examples of possible topics include the use of DNA fingerprinting in court cases, the use of statistics in standardized testing, the use of election polls in the media, the role of statistics and data science in epidemiology (e.g. in studying the Coronavirus).
2. **An analysis of an existing dataset.** You might apply some technique we have learned in

the course to a dataset that has already been collected. You can find datasets on the web using sites such as [www.census.gov](http://www.census.gov) and [www.city-data.com](http://www.city-data.com) for demographic data, [www.leesmovieinfo.net](http://www.leesmovieinfo.net) for movie earnings, etc., and use it to answer some question you’re interested in. The CDC also has new data sets updated daily on things like the Coronavirus at <https://www.cdc.gov/DataStatistics/>.

1. **An original survey or experiment.** You might conduct a virtual survey on some topic that interests you (e.g. twitter poll, email poll, piazza question). Such a project might involve developing a survey or set of questions, selecting a simple random sample as carefully as possible, and gathering the information to analyze. You’ll have to identify and defining different variables of interest. You should feel free to use your peers to help complete your project by asking for responses to brief surveys on Piazza.

If you have another project idea that does not fall into one of these categories, feel free to

talk to me about it.

For project (A), your digital poster should include the following four components:

1. **Research question or statement of purpose.** What problems or questions did you set

out to investigate? What were the key issues raised?

1. **Background.** Define any necessary concepts or terms or theorems. Note interdisciplinary connections where appropriate.
2. **Results and conclusions.** The summary and presentation of the key components of your question(s) and any answers you may have found. What did you learn about the problem or question you set out to investigate?
3. **Discussion and critique**. Was there anything particularly confusing to you? Do you have an unanswered question? What are some next steps someone could take if they wanted to research this topic more deeply?

For projects (B) or (C), your digital poster should include the following five components:

1. **Research question or statement of purpose.** What problems or questions did you set out to investigate? What were the key issues raised?
2. **Background and preparation.** How did you prepare for the project? What sources or background readings did you consult? What information did you use in developing your ideas from the conceptual stage to the finished project?
3. **Methodology.** What did you do, and how did you do it? How did you gather information using a survey, experiment, or other method? If you did a survey, how did you try to take a random sample? Even if you can’t obtain a random sample right now, how might you go about it in the future? What statistical techniques did you use, for example scatterplots, correlation, hypothesis tests, confidence intervals, estimation, exploratory data analysis? Discuss any attempts to mitigate potential sources of bias.
4. **Results and conclusions.** The summary and presentation of your analyses. What did you find out? This might include tables, graphs, or verbal summaries. What did you learn about the problem or question you set out to investigate?
5. **Discussion and critique**. Was there anything that came up in the process of carrying out your project? Did something go wrong? What are some improvement someone could make if they wanted to follow up with this project?

Also, for projects (B) or (C), the type of data you use should involve at least one quantitative variable and one categorical variable. Typically people doing surveys will collect 5–8 variables on each subject. Most projects should have at least one confidence interval and one hypothesis test and one graph.

The content of your project should be equivalent to roughly that of an 5-6 page paper. (You

do not need to hand in a paper.) You should use large print on your poster and aim for an

attractive and well-organized display. Try to think of a catchy title that captures the spirit

of your project.

You need to get approval for your project idea by the last day of class, Friday May 1st.

Your final project will need to be submitted to Moodle by 2pm on **May 15**, 2020.