

Requirement of COVID-19 *R* Project

The *R* project is to complete a COVID-19 data analysis project by using statistical software *R*. Note the style is not "I give you a specific project and tell you how to do it". Rather, an ideal project will find interesting real-world data for which some scientific questions are involved, describe the data, and then analyze the data using existing statistical techniques, followed by interpretation and discussion. Students may choose any public data online about the topic COVID-19 on which to conduct a study.

Examples of COVID-19 data resources:

1. COVID-19 Data Hub: <https://covid19datahub.io/>
2. Yu-Group: <https://github.com/Yu-Group/covid19-severity-prediction>
3. The COVID Tracking Project: <https://covidtracking.com/>

Requirement of the final report:

A 3-page paper reporting the results of your project that includes the following:

1. The research question(s), mainly related with the **association studies** among the variables of your interest, such as the mobility and infection rates, social distancing scores and cases, etc.
2. Background/significance of the research
3. The methods used to obtain and analyze the data, including the **regression** analysis and the **side-by-side boxplot**.
4. The results of the analysis (tables, charts, graphs, descriptive text)
5. Interpretation of the results and communication of the story
6. A discussion of the research, the limitations of the current research, reasonableness of any assumptions made, possibilities of future work/studies that should be conducted, etc.

The entire written summary must be no more than 3 pages: single spaced, Arial 11pt font with standard 1 inch margins.

In addition to the three pages with the main content you should have (a) A separate title page which includes: **The title of the project, your printed name** and a **one-paragraph abstract** (summary) of the entire project with recommended length of no more than 150 words. Note: Nothing else should be on the title page! (b) References should be listed at the end of the report and do not count against the 3 page limit.

Example, you might submit a 4.5 page Word document that is consists of the title page, 3 pages of text/graphs and half page of references.

(Optional) You may include up to 5 additional pages of information about your project in an appendix (as part of the single report), this could include secondary analysis results, charts/tables, etc. The optional appendix may, but not necessarily, be viewed by the instructor if questions arise when reading the 3 page paper. Please note that the information in the appendix will be used by the instructor if questions arise when reading the 3 page paper. Information in the appendix will not be used as a primary source of information for scoring purposes. Thus, no information deemed critical to the evaluation of your project should be included in the Appendix.

Important notes:

The instructor may wish to verify the results in any project and may request the data set(s) used in the project. The instructor reserves the right to use the projects and abstracts for promoting undergraduate statistics education. No material will be used for commercial purposes.

If data are collected on human subjects, it is the responsibility of student to ensure that IRB approval has been secured from the University.

Some General Criteria for judging the projects:

1. Description of the data source
2. Accuracy of data analysis
3. Accuracy of conclusions and discussion
4. Overall clarity and presentation
5. Originality and significance of the study

The instructor will also be evaluating the following areas with regards to writing quality:

1. Is the paper well-organized? (Paragraphs organized in a logical manner)
2. Is each paragraph well-written? (Clear topic sentence, single major point)
3. Is the paper generally well-written? (Good use of language, sentence structure)
4. Are tables/figures labeled correctly and referenced accordingly?
5. Does the entire paper flow and answer the research question(s) sufficiently? Is there extraneous information presented?

Things to turn in: report together with data set on canvas.