**Project:** You can work with up to two other classmates on this project. Immediate assignment is to decide the members of your group. You can work alone on the project.

Note: Depending on class format changes, you may **have** to work alone on the project.

**Due Date: April 17, 2020. Will accept until April 21.**

* **Only 1 member** of the group should submit the project.

**Basic description:** choose an analytical technique within the scope of this course. Demonstrate the analytical technique using example/real data. Show how to perform the analytical technique using R. Organize the project material along the lines of a 15-minute presentation of the data analysis, explanation of the methods used, and a discussion of the results. Summarize the material in the form of a handout, preferably Word document or Power Point presentation. Projects will be posted on Canvas.

Use the following helpful writing guide to help with the content of the minimum sections to include (abstract, methods, results, discussion, literature cited):

**(Accessed on March 3, 2020)**

<http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html>

The sections appear in a journal style paper in the following prescribed order:

|  |  |
| --- | --- |
| **Experimental process** | **Section of Paper** |
| What did I do in a nutshell? | [Abstract](http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html#abstract) just need ~ 3 sentences\* |
| What is the problem? | [Introduction](http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html#introduction) |
| How did I solve the problem? | [Materials and Methods](http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html#methods)\* |
| What did I find out? | [Results](http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html#results)\* |
| What does it mean? | [Discussion](http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html#discussion)\* |
| Who helped me out? | [Acknowledgments](http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html#acknowledgments) (optional) |
| Whose work did I refer to? | [Literature Cited](http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html#literaturecited) (give credit for anyone’s work you use) \* |
| Extra Information | [Appendices](http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html#appendices) (optional) |

\* required section for Project. Also include a cover page/slide with title, members of the project team, and date.

See next page for examples of projects completed during previous years.

**Be creative. You can choose a topic we covered, will cover, or will not cover. Google “tutorial” on** [**www.rseek.org**](http://www.rseek.org) **for examples. There are over 226,000,000 hits.**

COMPUTING & GRAPHICS IN APPLIED STATISTICS

Listing of Sample Student Projects Completed Previously

|  |  |
| --- | --- |
| 1 | Analysis of Automobile Accident Rates in Minnesota |
| 2 | Robust Regression in R |
| 3 | Model Selection in R for the 2014 NFL Draft |
| 4 | Finding Influential Observations |
| 5 | Testing for Collinearity |
| 6 | Birthrate and Economic Development |
| 7 | Model Selection |
| 8 | Statistical Analysis of Prostate Data using R |
| 9 | Robust Regression |
| 10 | Diagnostics |
| 11 | Univariate Displays and Model Selection |
| 12 | Creating a Prediction of Time Series Data Using R |
| 13 | Univariate Displays of Data |
| 14 | Monte Carlo Simulation of Craps Using R |
| 15 | Linear Regression |
| 16 | Modeling Arsenic Level in Bangladesh’s Groundwater |
| 17 | Scatter, Stem-and-Leaf, Histogram, Box and Whisker, Ellipse, Residual, Quantile-Quantile Plots in R |
| 18 | Wine Quality |
| 19 | Univariate Displays of Data in both R |
| 20 | Scatter Plot Matrices in R |
| 21 | MPG of Cars in Response to Horsepower and Weight |
| 22 | Model Selection and Regression Diagnostics |
| 23 | Monte Carlo Simulation of Craps |
| 24 | Means-Based Permutation Test |
| 25 | Model Selection |
| 26 | t-test SAS procedures |
| 27 | Monte Carlo Simulations |
| 28 | Bootstrapping: An Introduction |
| 29 | Model Selection in R |
| 30 | Regression Model Building |
| 31 | Resampling Methods |
| 32 | Outlier Detection and its Statistical Considerations |
| 33 | What are the determinants of face-to face medical visits? |
| 34 | Regression Analysis—Highway Accident Rate |
| 35 | A Study of Residual Analysis |
| 36 | Bootstrapping by Resampling Residuals |