STAA551 Case Study Requirements

Students will be divided into groups of 3-4. Data will be provided to each group, along with a brief description of the data. Each group will submit one final Case Study paper containing all of the components listed below. The written portion should be 7 pages (or less), written in the same style as a journal article, but with more detail and focus on the analysis.

Required Elements/Grading (20 points total)

Introduction (4 points)

- Background/identification of the purpose of the study.
- State response and predictor variables.
- Identify each variable as quantitative or categorical (with levels specified for categorical variable).
- Identify observational units and number of observations, along with additional details of the study, as needed.

Summary Statistics and Graphics (4 points)

- Do this *before* formal model fitting.
- Include information on data cleaning/restructuring.

Analysis (5 points)

- Description/discussion of analysis with enough detail that someone else could recreate your results.
- You are encouraged to try different approaches, but do **not** use stepwise regression or all-subsets regression. Use only the least squares methods we have covered in this class (no other methods, such as loess or splines, should be used).
- Justify any choices that you made as part of the analysis.
- Discuss model assumptions and include diagnostic checks (plots and tests).
- As you are working toward a final model, keep in mind all that we have covered (checking model assumptions, transformations, WLS, GLS, influential observations, collinearity, etc).

Results and Conclusions (5 points)

- Final model and fitted equation
- ANOVA tables and tables of estimated coefficients/standard errors
- Other results as appropriate

- Interpretation and discussion
- Refer back to the purpose of the study (how will your fitted model be of benefit)

Overall Style (2 points)

- **7 pages or less** (including graphs, but not R code or references)
- Use complete sentences and correct grammar.
- R code should NOT be included in main body of the report.
- While some tables and results can be taken directly from R output, the reader should **not** have to sift through superfluous output (reduce R tables down to only what is needed).
- Graphs should be clearly labeled.

R Code Appendix

- I will check congruence of R code vs written description.
- If R code is not included, there will be a 2 point deduction.