

Work in a group of two/ three to find a real-world problem/data set to analyze and summarize. In this project, regression analysis is your main tool and you should have a specific problem to address.

Data:

You should select an original problem (not one already analyzed) and one likely to result in a more elaborate analysis than simple t-tests or simple linear regression.

Method:

You will primarily use regression analysis in the project. Your analysis must include:

1. Multiple linear regression models (If you work in a group of three, build at least three models. If you work in a group of two, build at least two models)
2. Use at least three different graphical methods for data exploration, model diagnostic, and model evaluations.
3. Model diagnostic to examine regression assumptions
4. Transformations of variables (both categorical and quantitative)
5. Statistical Inference and parameter interpretation.

Submission:

1. Each group will write a final report. The report is limited to 10 pages and should take the structure of a journal article in that it contains 1) background and description of the problem 2) design and analysis 3) results and 4) discussion and conclusions. Tables and plots should be integrated into the text and not included in the back. (30%)
2. Each group will give a final presentation in the last week of the semester (two or three lectures). The oral presentation will be ~ 10 min long and focused on the problem and analysis. (40%)
3. Peer review: you will be assigned a written report from the other group and you need to write one-page review on the strengths and weaknesses of the report. (30%)

二/三人一组，找出一个现实世界的问题/数据集进行分析和总结。在这个项目中，回归分析是你的主要工具，你应该有一个具体的问题要解决。

数据:

你应该选择一个原始问题(而不是已经分析过的问题)，一个可能导致比简单t检验或简单线性回归更详细的分析的问题。

方法:

你将主要在项目中使用回归分析。你的分析必须包括:

1. 多元线性回归模型(如果你是三人一组，至少要建立三个模型。如果你是两人一组，至少建立两个模型)
2. 使用至少三种不同的图形方法进行数据探索、模型诊断和模型评估。
3. 模型诊断以检验回归假设
4. 变量的变换(分类和定量)
5. 统计推断和参数解释。

提交:

1. 每组写一份期末报告。报告以10页为限，应采用期刊文章的结构，包括:1)问题的背景和描述;2)设计和分析;3)结果;4)讨论和结论。表格和图表应整合到正文中，而不是包含在后面。(30%)
2. 每个小组将在本学期的最后一周做一次期末报告(两到三节课)。口头报告时间约为10分钟，重点是问题和分析。(40%)
3. 同侪评议:你会收到另一组的书面报告，你需要就报告的优缺点写一页的评议。(30%)