Basic Statistics

Honours assignments

Due date: 13th May 2019

A report comprises of an Introduction, Methods, Results, Discussion, Conclusion, and References. For this assignment each student is required to write a mini-report of no longer than 10-pages.

Find, select and use a datasets of your choice. R has a range of built in datasets. One example of a built in dataset used throughout this course is the *ChickWeight* dataset. Information for this dataset (or any built in R dataset) may the obtained by running `??Chickweight` in the console. But you are not allowed to use the *ChickWeight* or *Iris* datasets, as they have been used *in infinitum* in the course.

Various datasets may be found online, here are some examples to get you going.

https://vincentarelbundock.github.io/Rdatasets/datasets.html

https://stat.ethz.ch/R-manual/R-devel/library/datasets/html/00Index.html

https://hofmann.public.iastate.edu/data_in_r_sortable.html

https://www.r-bloggers.com/datasets-to-practice-your-data-mining/

https://r-dir.com/reference/datasets.html

OR

The R Datasets Package:
There are around 90 datasets available in the package. Most of them are small and easy to feed into functions in R.
See a list of data with the statement below:

```
> library(help="datasets")
```

OR

Be a motivated scientist and collect your own data.

Instructions

Introduction

- Background information
- Importance
- Limitations
- Aims and objectives
- Clearly state the hypothesis being tested

Methods

- Materials and/or Site selection, etc., incl.
    - Map of the site location were data were obtained
    - Design
    - Procedure
    - Mention the statistical analyses used
    - Mention which programs were used to do these analyses.

Results

- Visualisations of descriptive stats, group differences, correlation or regression, etc.—i.e. graphs (these graphs should relate to the question being addressed)
- Statistical tests
- Explanation (no interpretation) of the outcome of the graphs and statistical tests, focussing only on the things that needed testing according to the Aims/Hypotheses

Be sure to show all the tests (exploring the data, normality tests, homoscedasticity) before doing any statistical analyses

Discussion

- State the major findings
- Explain the meaning of the findings and why they are important
- Relate the findings to those of similar studies
- Mention/ explain alternative explanations of the findings
- State the relevance of the findings
- Acknowledge the study limitations

Conclusion

- Include the summary of the main points

Bonus marks

- Using Rmarkdown
- Creating a theme for your plots
- Creating graphs or statistical tests with interpretations that has not already been done in class

Final submission

Create a folder titled with your name and surname e.g."amieroh_abrahams". In this folder you will have the following:
- A final word and PDF document
- A script with all of the necessary code used
- All of the datasets used within this research assignment
- If Rmarkdown was used please attach the Rmarkdown scripts as well as the word and PDF document.

Tips

- Make comments throughout the script
- Clean scripts will only have a positive influence on the person marking which is important

**********Goodluck**********