Data Analysis

Introduction

This is a practical course aimed at teaching students how to be an applied statistician and analyse data independently in a meaningful way. Thus, it will not teach you any new statistical theory, but rather how to apply statistical methods you already know to real data in a sensible way. The theory upon which this course is based includes:

- Numerical summaries and visualisations of data
- Data manipulation
- Correlation
- Normal linear models
- Sampling
- Confidence intervals
- Hypothesis testing
- Generalised linear models

Intended Learning Outcomes

By the end of the course students will be able to:

1. Implement the statistical techniques listed above in R.

2. Interpret the results and draw appropriate conclusions.

3. Develop, implement and make inference from an appropriate statistical model to answer questions of interest about a given data set.

4. Write up the results of a statistical analysis concisely in the form of a written report.

Assessment

As this Data Analysis course teaches you how to be an applied statistician it is 100% coursework, and hence there is no exam. The coursework assessment takes the following form.

Assessment	Percentage
Quiz 1	5.0
Class Test 1	35.0
Quiz 2	5.0
Class Test 2	35.0
Group project	20.0

Course breakdown

The course consists of 10 computer based sessions which you are encouraged to do on a weekly basis. The full timetable is shown below. Please pay particular interest to when the continuous pieces of assessment occur (highlighted in bold).

Session	Topic
Week 1	Visualising data using R
Week 2	Data manipulation
Week 3	Regression modelling (**Quiz 1**)
Week 4	Writing reports using Rmarkdown
Week 5	**Class test 1**
Week 6	Multiple regression
Week 7	Confidence intervals
Week 8	Hypothesis testing (**Quiz 2**)
Week 9	Generalised linear models (**Group project**)
Week 10	**Class test 2**

Note on assessments

1. The two quizzes will be open for assessment for a one week period.

2. The two class tests will be sat under exam conditions.

3. The group project is to be submitted via Moodle by the deadline shown on the coursework. A declaration of independence form and a contribution form must also be signed and submited.

Help forums

Support for the course will be provided via Moodle in the form of help forums under the **Help Forums** section on the Data Analysis Moodle page. Each week's material will have its own dedicated forum where you can post questions relating to the material. Please try to post your questions in the relevant forum and minimise asking the same/similar questions to those already posted.