**Professional and Research Skills in Practice [PGGE11238]**

**Assessment 2 – Data handling and analysis exercise**

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This assessment is based on the class dataset which consists of results of the survey undertaken by SRUC undergraduates as well as the MSc class. The data can be found in an Excel spreadsheet on Learn,

**Assignment**

Aim: To select appropriate data to answer **three specified research questions**, to present appropriate summaries of the data, and perform and interpret **3 different and appropriate statistical tests**..

The data set created from the results of the questionnaire will include both quantitative (*eg.* pulse rate) and qualitative (*e.g.* how do you rate your diet) information.

**Your investigation must include at least one qualitative (categorical) data set and at least one quantitative data set. For your third question you can select a qualitative or quantitative data set. Please make sure that you use three different tests (variations on a type of test count as ‘different’ – for example using a one-way ANOVA for one test, and then a two-way ANOVA for another, is acceptable).**

You will be assessed on the clarity of your objectives and hypotheses; the appropriateness of data selection and manipulation, descriptive statistics and graphs; choice and execution of appropriate tests; concise, informative and correct presentation; and valid conclusions.

**For each of THREE investigations in turn:**

**1. State a research question that could be investigated using these data.**

*The question should be sensible, require some analysis (i.e. not self-evident), and answerable from the data available. You should introduce the topic and state why you have decided to look at this question, and if you have any expectations in terms of the results. A good answer would back up some statements by briefly referring to some literature (though a detailed use of literature is NOT expected).*

**2. Formulate hypotheses.**

*State appropriate null* ***and*** *alternative hypotheses that can be tested using this data. These should be clearly stated ensuring that your hypothesis is answerable by the statistical analysis that you have performed.*

**3. Summarise data using descriptive statistics.**

*Identify the data sets relevant to the investigation and present a summary table of descriptive statistics, according to the nature of the data. The analysis can be done in Excel, Minitab or any other software package, but do not simply present statistical output. You should select the statistics relevant to the data and the hypothesis and summarise this as a suitable table in the report. Write a summary of what this data output shows, do not assume that the reader will be able to interpret the summary output by itself.*

**4. Perform an appropriate statistical test to test your hypothesis.**

*Use a suitable statistical test to answer your research question. State why you have chosen this test and what assumptions you have made when selecting it. Test of relevant data can be performed in any appropriate software package with the output being summarised in the text. If necessary, make sure you summarise this in a suitable table and do not simply paste software output into the text. Comment on the results in the conclusions to show that you have interpreted the output correctly.*

**5. Draw appropriate graphs or charts.**

*Produce at least one relevant and appropriate graph or chart showing data. The figures must be properly captioned and include a full explanatory legend if necessary. Graphs can be produced in any software package*.

**6. Conclusions**

*State your preliminary conclusions based on the descriptive statistics, statistical analysis and visual evidence. How do your results relate to other information that is available? Do your results tend to support the Null hypothesis or not: is the outcome clear-cut or not? Expand on your answer where possible referring to any other literature you may have read (but again, only briefly if necessary).*

**There is no word or page limit for this assessment, but it is suggested that 2 pages per question will be sufficient.**

**Submission date: noon, Thurs 30th Jan, via the Learn drop box**