

Probability and Statistical Inference
Continuous Assessment
Semester I 2018/2019
Due Date: Sunday 4th November 2018 @ 23.59

OVERVIEW

For the continuous assessment you are required to conduct and report on a statistical analysis to investigate a question for a given dataset. The dataset and description is available in Webcourses.

PhD students only: can choose a different dataset to that provided.

For this part of the assignment you are required to write a description of the dataset to support your intended analysis, reporting relevant descriptive statistics and visuals and present the outcomes of preliminary exploratory analysis of correlation and difference.

This part of the assignment is worth 50% of the CA for module. It will be marked out of 100 and your marks weighted in your final result calculation.

NOTES

1. Unfair practice is a very serious offence in the DIT and you must acknowledge any material used by including a referenced bibliography in your report. Any issues will be investigated and those considered serious will be handled via the DIT Plagiarism policy (details are available in the General Assessment Regulations).
 2. Assignments must be submitted via Webcourses through the assignment section. Email submissions will be ignored.
 3. Extensions due to acceptable personal circumstances must be requested by email in advance of the deadline.
 4. For late submissions (i.e. without an agreed extension), a penalty of 5% will be applied for every day a submission is late.
 5. No submissions will be accepted after Friday November 9th 2018 @ 23:59 unless an extension has been agreed.
NB: Anything submitted later than this date without agreement will be ignored.
 6. Assignments which do not adhere to the requirements or which are submitted incorrectly will attract a penalty of up to 10%.
 7. No resubmission of assignments after feedback is given is allowed.
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DESCRIPTION

You are expected to :

- State the question you are interested in;
- Present a summary of the data used, critically discussing relevant issues which impact statistical analysis;
- State a small number of hypotheses derived from your previous discussion that you can test to investigate correlation and difference;
 - At least five hypotheses are required:
 - At least one involving correlation;
 - At least two involving difference one of which must involve a categorical variable with more than 2 values;
- Conduct appropriate statistical tests to test your hypotheses;
- Present the findings of the statistical tests used;
- Interpret the findings for the stated hypotheses;
- Adopt the APA guidelines for reporting statistical analysis using APA citation and referencing.
- You must use R to conduct your analysis;
- You should cite appropriate sources (which are accessible) in order to support the guidelines you adopt in your decision making and interpretation of findings.

PhD Students in addition will be expected to:

- Provide context for their question based on appropriate research sources;
- Interpret their findings comparing and contrasting with appropriate research.

You will need to demonstrate:

- An ability to generate and correctly state hypotheses;
 - The ability to correctly analyse, present and critically assess the dataset used from the perspective of statistical analysis;
 - The ability to correctly execute, present and interpret appropriate statistical tests for correlation and difference using statistical software;
 - The ability to interpret the findings gained from your statistical analysis in a clear and accurate way;
 - The ability to report on the outcomes of statistical tests;
 - The ability to interpret outcomes of statistical tests and report on this interpretation in the context of a statistical inquiry.
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DELIVERABLES

- You need to submit an R markdown file plus the HTML/PDF created from this.
- You must include the following information at the start of your RMD file:
 - Student Number: <<your student number>>
 - Student Name: <<your name>>
 - Programme Code: <<programme code>>
 - The version of R used.
 - The R packages needed for your code to execute successfully.
- State clearly the question you are intending to investigate as part of your analysis.
 - **PhD Students:** you need to include a short background section citing appropriate references in support of your question and interpret your findings comparing and contrasting with appropriate research.
- State clearly the hypotheses you intend to test.
 - At least five hypotheses are required:
 - At least one involving correlation;
 - At least two involving difference one of which must involve a categorical variable with more than 2 values;
- You must describe your dataset.
 - You must describe your variables in terms of their statistical measurement types and describe them with appropriate descriptive statistics and graphs.
 - You must address all issues which could impact on the choice of statistical tests.
- Conduct the tests and report the outcomes in paragraphs using full sentences using APA style for reporting statistical results.
 - Justify your choice of test based on your assessment of the dataset.
 - Comment on effect as well as statistical significance.
- Interpret your findings appropriately relevant to your hypotheses. Report on them correctly
- A useful guide to creating a report of a statistical inquiry using APA guidelines is available at <http://www.discoveringstatistics.com/docs/writinglabreports.pdf>.

SUBMISSION

All required documents should be submitted using the **CA Part I Assignment** box in the Webcourses module.

- An R markdown file including all the commands, outputs of these commands and descriptive text required plus an html output created from this markdown (using knit).
 - The format is at your discretion but you should name them <<Student #>>PSICAPart1.rmd and <<Student #>>PSICAPart1.html or <<Student #>>PSICAPart1.pdf where <<Student #>> is your student number e.g. D1111111PSICAPart1.rmd, D1111111PSICAPart1.html or D1111111PSICAPart1.pdf
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BASIC MARKING SCHEME

Correct statement of question and supporting hypotheses.	15
Analysis, assessment and presentation of variables of interest.	20
Correctly identification, conduct and reporting on correlation and difference tests.	50
Valid interpretation of the findings for hypotheses and question.	15
	100
