MSc Statistics Coursework: 2018-2019

For MSc students enrolled on PS71020D.

Logistics
- The submission deadline is **1PM on Friday, 25 January 2019.**
- Submission is **electronic only** via the module page on learn.gold (the link will be created shortly). *Any submissions received via email will not be considered.*
- Include your student ID number as the **filename**. Reprint it on the **first page** of the document. Do **not** include your name anywhere in the submission.
- Any student who submits the report late must also submit an extenuating circumstances application (available from the office) with supporting documentation **within 1 week of the deadline**. Do **not** email the module coordinator your application – send it to the office. Any queries regarding extenuating circumstances should be directed to the office, not the module coordinator. Late work (due to extenuating circumstances) should be submitted through the same submission page on the VLE.
- Plagiarism (and/or collusion with other students) will be taken **very seriously** and will be penalized. Avoid plagiarism and collusion with other students.

Submission
In your submitted report, you should perform the appropriate analyses and describe the different steps of the analyses, as described below. To present your analyses and conclusions you should write a **brief** introduction, **detailed** results section, and a **concise** discussion section, using the same format that would be expected in a journal article (i.e., **APA style**). There is a **1500-word limit** for this assignment. Independent of the word limit, you may include a maximum of **four tables and/or figures**. Appendices are not permitted. References are **not required** but can be included to justify specific analytic decisions (these will not be included in the word count).

Data set
These data come from a study of the correlates of colour working memory in healthy controls. Participants provided demographic information (age, years of higher education [gender data wasn't available]) and completed a battery of cognitive tasks: 1) visual attention (response times – faster scores reflect superior performance); 2) colour processing (# of errors); 3) colour episodic memory (% correct); 4) auditory working memory (% correct); 5) general intelligence (% correct); and 6) colour working memory (% correct). The researchers are interested in whether (i) performance on the cognitive tasks can explain a significant amount of the variance in colour working memory (the researchers wanted to include all variables but they were primarily interested in colour processing and visual attention), (ii) whether any observed effects are independent of demographic variables, and (iii) whether colour processing mediates the relationship between visual attention and colour working memory. All the individual data have been screened and cleaned so that there are no missing data or miscodings; you can assume that data are normally distributed with no univariate or multivariate outliers.

Research questions
Please perform a set of analyses on these data. In your write-up: (a) provide a brief introduction (**5 marks**); (b) detail the screening that was performed to ensure the data are suitable for these analyses (**10 marks**); (c) examine whether individual differences in colour

working memory can be predicted by performance on the other cognitive tasks (include inferential statistics and effect sizes for the full model and individual predictors and interpretation of the results) (**20 marks**); (d) repeat the analysis but examine whether the predictive utility of the model is independent of the possible relationship between the demographics variables, which the researchers consider nuisance variables, and colour working memory (include inferential statistics and effect sizes for the full model and individual predictors and interpretation of the results) (**25 marks**); (e) test the mediation model proposed by the researchers (you don't need to use the PROCESS toolbox for this – conventional analyses in SPSS are fine) (include inferential statistics and effect sizes for the full model and individual predictors and interpretation of the results) (**25 marks**); (i) present a brief discussion of the results (**10 marks**). All features of the report should be written according to APA style (**5 marks**).