## Lab Report (50%)

During the module you will ask to conduct a secondary data analysis of an existing dataset and report your employed procedures and findings in 2000-word research report. This written assessment is worth 50% of your final mark.

Deadline for lab report:

* **3rd of May, 2022 by 3:00 pm**.

You have been provided with two data sets. Using this dataset, you are asked to think of a ***simple* hypothesis** that you could test using **ONE of these datasets** and write it up as a lab report.

You will be required to:

* identify and rationalise a hypothesis;
* operationalise your variables;
* perform and describe data cleaning and assumption checking procedure
* conduct, interpret and report (using APA) your data analysis (including both inferential statistics and power analysis).

## Dataset 1

Dataset 1 consists of data that was collected as part of a published study by Liddle et al (2011). Participants were 36 children, 18 with Attention Deficit/Hyperactivity Disorder (ADHD), and 18 typically developing children matched pair-wise for age, gender and parental socio-economic status, and data on these were provided. Data is also available for their weight, and Full Scale IQ (FSIQ). In addition, behavioural data is available on their performance on a Go/No-go task, a task that measures motor impulsivity, which is a clinical feature of ADHD. Children performed the task under two conditions:

* In a High Incentive condition they could win extra points on No-go trials by successfully inhibiting their responses, but would lose points if they failed to inhibit, giving them a strong motivation to concentrate.
* In a Low Incentive condition, they did not win so many points if they inhibited correctly, but nor did they lose so many, giving them less incentive to concentrate.

In *both* conditions they gained a point on Go trials if they pressed the button in time, but lost a point if they were late. All children attended for two sessions, on one of which the children with ADHD were withdrawn from their usual methylphenidate (MPH) medication, in counterbalanced order. The typically developing children took no medication on either occasion. Performance on the task is measured by their D’ score (pronounced "d prime"; defined by Signal Detection Theory). This measure reflects overall performance on the task, taking into account both missed responses on Go trials and failure to inhibit a response on No-Go trials.

## Dataset 2

Dataset 2 consists of data from a published study by Mireault and Bond (1992). It consists of data from 381 undergraduate students at a university in New England. The students were recruited from three groups: those who had lost a parent through death before age 18; those whose parents were separated or divorced; and those with intact families. Students completed a questionnaire (the Brief Symptom Inventory, BSI) which assesses nine symptom dimensions of mental health, including Depression, Anxiety, Hostility, Interpersonal Sensitivity and Perceived Vulnerability to Loss. Data was also collected regarding the student’s study area, year of study, and Grade Point Average (GPA), and, for the students who had lost a parent to death, the child’s age at the time of the parent’s death.

**What you need to do:**

For the assessment, you will write a short lab report on your analysis. It should consist of four sections:

**Aim [20% of mark].** Briefly explain the rationale for your hypothesis and give the operationalization of your constructs and measures. State your hypothesis clearly. If your rationale justifies a specific prediction (e.g. that two variables will be positively correlated), state that prediction.

**Methods [30% of mark].** Describe the participants and any procedures relevant to *your* hypothesis. For other details of the study, refer toLiddle et al, 2011, or Mireault and Bond (1992) “for further details of participants and procedures”. Provide as summary of utilised measures and their psychometric properties. State your null hypothesis and describe the statistical procedure (method or test) you used to test it*.* State how much statistical power you had to find *small*, *medium*, and *large* true effect sizes, and describe how you calculated this.

**Results [30% of mark].** Present the results of your analysis, using figures and tables as appropriate, and using APA style. Report the results of any tests you used to check the assumptions of your statistical method and describe any data cleaning considerations and procedures. State your *observed* effect size, even if the effect was not statistically significant.

**Conclusion [20% of mark].** State clearly whether the results of your analysis support your study hypothesis or not. Say what you can conclude from your results, and discuss any implications for your rationale. If your result was not statistically significant, say how large an effect, if any, you can rule out with reasonable confidence. Give any other limitations or caveats that you think readers should consider.

You should include a reference section, but this is not marked separately. The maximum length allowed for the assessment is a single 2000-word document. The +/- 10% to the wordcount does not apply to this assessment. There is NO minimum length.

Figures, tables, and legends (please ensure you format these in line with APA style guidance) are not included in the word count, but you should not include information in the figure and table legends that is not also available in the text. The reference section is not included in the word count, but in-text citations are. You are not expected to cite a large number of references, but you should reference the study from which the data are taken.

# **Before you begin ….**

* Make sure you have **read the marking criteria** for this assignment. It can be found on Moodle. In the folder called ‘lab report’.
* Make sure you have **listened to the pre-recorded presentation** on this assignment. This is available on the Moodle page .
* You can find a **summary of common mistakes** on this assignment on Moodle. We recommend that you read and reflect on these.
* We will offer an **Q & A session** on the assignment closer to the deadline. Dates to be confirmed. Please keep an eye out for a Moodle announcement.
* All email queries will be answered on a common Moodle thread. Please check this thread before your email your lecturers with queries.

# **References:**

Liddle, E. B., Hollis, C., Batty, M. J., Groom, M. J., Totman, J. J., Liotti, M., Liddle, P. F. (2011). Task-related default mode network modulation and inhibitory control in ADHD: effects of motivation and methylphenidate. *Journal of Child Psychology and Psychiatry*, *52*(7), 761–771. <http://doi.org/10.1111/j.1469-7610.2010.02333.x>

Mireault, G. C., & Bond, L. A. (1992). PARENTAL DEATH IN CHILDHOOD: Perceived Vulnerability, and Adult Depression and Anxiety. *Journal of Orthopsychiatry*, *62*(4), 517–524. <http://doi.org/10.1037/h0079371>