Cramming Sam's Tips for Chapter 6: Non-parametric models

Mann–Whitney test

- The Mann–Whitney test and Wilcoxon rank-sum test compare two conditions when different participants take part in each condition and the resulting data have unusual cases or violate any assumption in Chapter 5.
- Look at the row labelled *Asymptotic Sig.* or *Exact Sig.* (if your sample is small). If the value is less than .05 then the two groups are significantly different.
- The values of the mean ranks tell you how the groups differ (the group with the highest scores will have the highest mean rank).
- Report the *U* statistic (or W_s if you prefer), the corresponding *z* and the significance value. Also report the medians and their corresponding ranges (or draw a boxplot).
- Calculate the effect size and report this too.

Wilcoxon signed-rank test

- The Wilcoxon signed-rank test compares two conditions when the same participants take part in each condition and the resulting data have unusual cases or violate any assumption in Chapter 5.
- Look at the row labelled *Asymptotic Sig. (2-sided test)*. If the value is less than .05 then the two conditions are significantly different.
- Look at the histogram and numbers of positive or negative differences to tell you how the groups differ (the greater number of differences in a particular direction tells you the direction of the result).
- Report the *T*-statistic, the corresponding *z*, the exact significance value and an effect size. Also report the medians and their corresponding ranges (or draw a boxplot).

The Kruskal–Wallis test

- The Kruskal–Wallis test compares several conditions when different participants take part in each condition and the resulting data have unusual cases or violate any assumption in Chapter 5.

- Look at the row labelled *Asymptotic Sig.* If the value is less than .05 then the groups are significantly different.

- You can follow up the main analysis with pairwise comparisons, comparing each group against each other group in pairs, but correcting the resulting *p*-value of each test so that the overall error rate remains at 5%.

- If you predict that the means will increase or decrease across your groups in a certain order then do Jonckheere's trend test.

- Report the *H*-statistic, the degrees of freedom and the significance value for the main analysis. For any follow-up tests, report an effect size (you can also report the corresponding *z*-score and significance value). Also report the medians and their corresponding ranges (or draw a boxplot).

Friedman's ANOVA

- Friedman's ANOVA compares several conditions when the same participants take part in each condition and the resulting data have unusual cases or violate any assumption in Chapter 5.

- Look at the row labelled *Asymptotic Sig.* If the value is less than .05 then the conditions are significantly different.

- You can follow up the main analysis with pairwise comparisons. Which compare each group against each other group in pairs, but correcting the resulting *p*-value of each test so that the overall error rate remains at 5%.

- Report the χ^2 statistic, the degrees of freedom and the significance value for the main analysis. For any follow-up tests, report an effect size (you can also report the corresponding *z* and the significance value).

- Report the medians and their ranges (or draw a boxplot).