EPRS8540
Review

ANOVA

1. Describe a situation in which one-way ANOVA is an appropriate analysis.   Identify the independent variable (IV) and the dependent variable (DV).   Clarify the levels of IV.

2. Explain between-group variation and within-group variation.   How are they used in ANOVA?

3. Make up a small data set for one-way ANOVA, and calculate so that you can make an ANOVA table. Then, if the F value is significant, perform a post hoc analysis.

4. What are the purposes of post hoc analyses?

5. Explain MS_w and MS_b in terms of variances.

6. Identify all the assumptions for one-way ANOVA.   How robust is ANOVA to violation of each assumption?   What are the consequences of violating each assumption?

Power

7. Explain what "power" is. Relate to Type I and Type II errors.

8. What are the factors affecting power?   How can you improve power?

9. Given a data set, estimate effect size, and interpret the effect size.   Then, estimate power.

10. Given a nonsignificant F, what can you say about power?

11. Describe a procedure to determine how many subjects you need for a study.

12   Do you want to have high power or small Type I error in a study??

Factorial ANOVA

13. Describe a research situation in which factorial ANOVA is an appropriate analysis.   Identify IVs and DV. Also identify the levels of each IV.

14. What is aptitude by treatment interaction?   Give an example.

15. What are the advantages of using factorial ANOVA?

16. Given a small data set for factorial ANOVA, calculate and make an ANOVA table.   Depending on the results, pursue simple effect analysis and/or post hoc pairwise comparisons.

17. Explain main effects and interactions.

18. Graph interactions.

19. Repeat #13, 17, and 18 with higher order design (i.e., three-way ANOVA).¥

20. Describe Holm's procedure including what it is, why we need it, and how it works.