<u>Study Questions – Midterm I</u>

1. Be comfortable and competent in the calculations (one-way anova, setting up, computing and testing contrasts, trends, post-hocs, etc.).

2. Describe the fundamental assumptions necessary for anova to be valid. What are the sources of these assumptions? What goes wrong, and how much does it go wrong, when the assumptions are violated?

3. Describe how variances can be used to test hypotheses about means.

4. Describe how the raw sum of squares and df are partitioned in one-way anova.

5. What does the test of the grand mean we analyze tell us?

6. Normally what are the H_O and H_A for one-way anova? What other H_O is possible?

7. Define type I and II error and power. What affects the size of α, β, $1-\beta$?

8. Why are what Keppel calls "analytic comparisons" important?

9. What is an "expected value" and why are expected "mean squares" important?

10. What is a contrast technically speaking? Intuitively speaking? Give an example.

11. What does the term orthogonal contrast mean?

12. What are orthogonal polynomials? What are they used for? When can you use them?

13. How do orthogonal polynomial coefficients express a polynomial equation $(y=ax^0+bx^1+cx^2+dx^3\ldots)$?

14. Which kind of follow-up tests to ANOVA completely partition the SS of the treatment effect?

15. What is "family-wise" alpha level, and what is sacrificed in order to attain a given family-wise alpha?

16. Explain how a confidence interval for a contrast differs from and is similar to a significance test. Relate confidence intervals to the concepts of type I error and statistical power.

17. How does s^2pooled relate to the ANOVA table?

18. What are residual tests good for? What else are residual tests good for?
* I am not responsible for omissions from this list