1. Why can’t you draw a conclusion about cause and effect from a correlational study, but you can from an experiment?
2. What is the rationale for obtaining an adjusted correlation?
3. What is the sampling distribution of the correlation coefficient? Why do we need it?
4. What information does a squared correlation provide?
5. What kind of question can the covariance answer that the sum of the cross-products cannot?
6. What kind of question can a correlation coefficient answer that the covariance cannot?
7. What does the term "family-wise alpha level" refer to? How is it different from the per comparison alpha level?
8. When would the Scheffe test be more appropriate than the Tukey test? When is the Tukey test more appropriate? Which is more likely to yield a significant post-hoc comparison?
9. How do you know what coefficients to pick when doing a comparison?
10. Under what circumstances would you employ a Bonferroni adjustment? What is the nature of this adjustment (i.e., what gets adjusted and how)?
11. What assumptions need to be met in order for regression to be an appropriate procedure?
12. When the correlation between X and Y is zero what is the equation for the best fitting regression line? What will the standard error of estimate be?
13. When the correlation between X and Y is +1.0 what will the standard error of estimate be? Why is this?
14. What information does the standard error of estimate provide?
15. How can you get r^2 using regression if you are not allowed to take the correlation coefficient and square it?
16. What is the criterion for generating the "best fitting line" in regression? How does this criterion change when using more than one predictor variable?
17. Why is the sum of squares regression said to be an amount of variability that is “accounted-for”? Why is the sum of squares residual “not accounted –for”?
18. In ANOVA, why is F the between groups variance divided by the within groups variance, rather than the between groups sum of squares divided by the within groups sum of squares?
19. What are the three basic assumptions in using ANOVA? What, if anything, can you do when each of these assumptions cannot be met?
20. What is the sampling distribution of the F ratio? What role does it play in ANOVA?
21. Please describe how the significance of a regression equation can be tested using an F-test?
22. What does the F ratio represent, conceptually? What does it mean when a F value is large enough to reject the null hypothesis?
23. Where does the “error” in the numerator of the F-ratio come from? Where does the “error” in the denominator of the F-ratio come from?
24. Could you do an ANOVA when there only two treatment conditions?
25. What is the rationale for obtaining an adjusted correlation?
26. Describe the advantage of looking at standardized regression coefficients, rather than unstandardized coefficients.
27. How do the forward, backward, and stepwise methods for selecting predictor variables differ from each other?
28. What do the SS_{Between-groups} and the SS_{Regression} have in common? What do the SS_{Within-groups} and the SS_{Residual} have in common?
29. How do the Forward, Backward, and Stepwise methods for selecting predictor variables work?

30. How can you use multiple regression to determine whether one predictor variable accounts for a significant amount of variability, above and beyond what a second predictor variable can account for? In other words, how do you test the unique contribution of a particular predictor variable?

31. What information does a squared multiple correlation provide?