

## 5700 Final Review

As before, this is not a 'list of everything to know' but rather a 'list of things to review'. Same as midterm approach in general, but you can also expect some applied examples and possible computation of F and/or  $R^2$  from a mostly completed Anova summary table.

- I. From the early days in your training. (Key readings: a simple review of lecture notes)
  - A. Reliability and Validity
  - B. Core concepts: Descriptive information
    - i. Central Tendency, Variability, Properties of statistics, graphical display
  - C. Normal distribution, sample, sampling distribution
  - D. Hypothesis testing
  
- II. Now you are the Master!
  - A. Correlation, Regression and the linear model (Key readings: Howell C-9; glm also in 16)
    - i. The general linear model: what is it?
    - ii. Regression
      - a) Model level
        - Overall fit, statistical significance, standard error of estimate, interpret ANOVA table (model variance vs. residual variance)
      - b) Other details
        - Slope (coefficient), intercept, statistical significance of coefficients, residuals, fitted values
      - c) Issues
        - Before: Reliability, Specification
        - After: Assumptions, outliers, validation
  
  - B. Concerning samples (Key readings: Howell C-7, Tryon article)
    - i. One sample
    - ii. Difference and equivalence with two samples
    - iii. Dependent samples
    - iv. Assumptions
  
  - C. Effect size (Key readings: Kline C-4, Thompson article)
    - i. Association
      - a) r-family:  $r, r^2, \eta^2$
    - ii. Group comparisons
      - a) d-family: standardized mean difference
      - b) case-level: overlap
    - iii. Interval estimates of and hypothesis testing with
  
  - D. Power (Key readings: Howell Chapter 8, Cohen article)
    - i. Relation of power, alpha, effect size, sample size; issue with typical psychological research
  
  - E. Other stuff
    - i. Confidence Intervals (Key readings: Howell C-7, Tryon article)
      - a) Using CIs in hypothesis testing
      - b) Inferential confidence intervals for group comparisons
      - c) Intervals for effect sizes

- ii. Modern approach to data analysis: problems with traditional methods, resistant approaches, bootstrap (Wilcox article)
- iii. Extensions: what is it?
  - a) Multiple regression
  - b) ANOVA