

Technical Paper 24

Analysis of Variance (ANOVA)

- A. Test for comparing more than two sample means.
- B. ANOVA is applicable to interval and ratio scale data.
- C. Assumptions
 - 1. Random sampling (very important)
 - 2. Independent samples
 - 3. Equal variances
 - 4. Normally distributed populations

$$SS_{Total} = \sum (x_i - \bar{x}_T)^2$$

$$SS_{within} = SS_1 + SS_2 + SS_3 + SS_4$$

$$SS_{among} = \sum n_i (\bar{x}_i - \bar{x}_T)^2$$

$$SS_{total} = SS_{among} + SS_{within}$$

$$s_{among}^2 = \frac{SS_{among}}{df_{among}}$$

$$s_{within}^2 = \frac{SS_{within}}{df_{within}}$$

$$F = \frac{s_{among}^2}{s_{within}^2}$$