Lecture 19:   Independent Samples Two Samples  t- test

" Difference between Means"

I)      The Hypothesis

Two tail:

**Ho:** $\mu_1 = \mu_2$

**H1**: $\mu_1 \neq \mu_2$

One tail (Direction):

**Ho:** $\mu_1 = \mu_2$
**H1:** $\mu_1 \geq \mu_2 \text{ or } \mu_1 \leq \mu_2$

II)      Set the level of Significance and Critical Region (p<.05; .01)

$$DF = N_1 + N_2 - 2$$

III)     $T = \dfrac{\bar{X}_1 - \bar{X}_2}{S\bar{X}_1 - \bar{X}_2}$

$d = \dfrac{\bar{X}_1 - \bar{X}_2}{\hat{S}}$   one sample

$\sqrt{\dfrac{N_1}{2}} * S\bar{X}_1 - \bar{X}_2$

$S\bar{X}_1 - \bar{X}_2 = \sqrt{\left(\dfrac{S_1}{\sqrt{N_1}}\right)^2 + \left(\dfrac{S_2}{\sqrt{N_2}}\right)^2} = \sqrt{S\bar{X}_1^2 + S\bar{X}_2^2}$

IV)    Conclusions/Interpretation

( Should have been t )