

FORMULA SHEET FOR T-TESTS

I. 1 SAMPLE T-TEST (df = n - 1)

- Estimated standard error $S_m = \sqrt{\frac{s^2}{n}}$
- t -observed $t = \frac{M - \mu}{S_m}$
- Cohen's estimated $d = \frac{M - \mu}{s}$

II. INDEPENDENT SAMPLES T-TEST (df = n1 + n2 - 2)

- Sum of Squares $SS = \sum x^2 - \frac{(\sum x)^2}{n}$
- Pooled Variance $s_p^2 = \frac{SS_1 + SS_2}{n_1 + n_2 - 2}$
- Estimated Standard Error $S_{(M_1 - M_2)} = \sqrt{\frac{s_p^2}{n_1} + \frac{s_p^2}{n_2}}$
- t -observed $t = \frac{M_1 - M_2}{S_{(M_1 - M_2)}}$
- Cohen's estimated $d = \frac{M_1 - M_2}{\sqrt{s_p^2}}$

III. PAIRED SAMPLES T-TEST (df = n - 1)

- Sample Variance for $d = \frac{\sum d^2 - \frac{(\sum d)^2}{n}}{n - 1}$
- Estimated Standard Error $S_{Md} = \sqrt{\frac{s_d^2}{n}}$
- t -observed $t = \frac{M_d}{S_{Md}}$
- Cohen's estimated $d = \frac{M_d}{\sqrt{s_d^2}}$

IV. GENERAL

- Variance $s^2 = \frac{SS}{n - 1}$
- Confidence Interval $CI = \bar{X} \pm (t - crit)(s_M)$