

### Confidence Limits for Population Means

To calculate confidence limits for population means

You can calculate a pooled variance as:

$$s_p^2 = \frac{df_1 s_1^2 + df_2 s_2^2}{df_1 + df_2}$$

Confidence limits for population means

You can calculate this with:

$$\bar{x} \pm t_{\alpha(2),df} \sqrt{\frac{s_p^2}{n}}$$

where  $\bar{x}$  is the mean of each population,  $t_{\alpha(2),df}$  is the t value for the confidence range, with  $\alpha(2)$  significance and  $df$  degrees of freedom. The variance is the pooled variance from above and  $n$  is the number of samples taken.

**Also See:**

Chapter 9 - Two-Sample Hypotheses pages 130-132 in:

Zar, J. H. 2007. Biostatistical Analysis. Prentice-Hall, Inc. Englewood Cliffs, New Jersey. 718 pp.