F – Test

The *F*-test is used to test for differences among sample variance. Like the Student's *t*, one calculates an *F* and compares this to a table value.

The formula for *F* is simply

$$F = \frac{s_1^2}{s_2^2}$$

The variance are arranged so that $F>1$. That is; $s_1^2>s_2^2$.

We use the *F*-test as the Student's *t* test, only we are testing for significant differences in the variances.

1) Invoke the null hypothesis that states that the two variances we are comparing are from the same population. (*i.e.*, they are not statistically different)

2) Calculate the *F* value (the ratio of the two variances)

3) Look up the table value of *F* for the degrees of freedom used to calculate both variances and for a given confidence level.

4) If the calculated *F* is greater than the table value, then the null hypothesis is not correct. Else, the two could have come from the same population of measurements.