

[4]	$\frac{\Sigma B^2}{np}$	The “uncorrected” variation attributed to Factor B
[5]	$\frac{\Sigma AB^2}{n}$	The “uncorrected” variation attributed to the A × B interaction
STAGE 3		
Sum of squares for Factor A	$SS_A = [3] - [1]$	The sum of the squared deviations for Factor A
Sum of squares for Factor B	$SS_B = [4] - [1]$	The sum of the squared deviations for Factor B
Sum of squares for the A × B interaction	$SS_{A \times B} = [5] - [1] - SS_A - SS_B$	The sum of the squared deviations for the A × B interaction
Sum of squares error (within groups)	$SS_E = [2] - [5]$	The sum of the squared deviations within each cell
Sum of squares total	$SS_T = [2] - [1]$	The sum of the squared deviations in all cells
STAGE 4		
Mean square for Factor A	$MS_A = \frac{SS_A}{df_A}$	The variance for Factor A
Mean square for Factor B	$MS_B = \frac{SS_B}{df_B}$	The variance for Factor B
Mean square for the A × B interaction	$MS_{A \times B} = \frac{SS_{A \times B}}{df_{A \times B}}$	The variance for the combined levels of Factor A and Factor B
Mean square error (within groups)	$MS_E = \frac{SS_E}{df_E}$	The variance within each cell. This is the denominator for all three hypothesis tests.
Hypothesis test for Factor A	$F_A = \frac{MS_A}{MS_E}$	The test statistic for Factor A
Hypothesis test for Factor B	$F_B = \frac{MS_B}{MS_E}$	The test statistic for Factor B
Hypothesis test for the A × B interaction	$F_{A \times B} = \frac{MS_{A \times B}}{MS_E}$	The test statistic for the A × B interaction
Step 4: Make a decision.		
General decision criterion	–	<p>When $F_{\text{obt}} < F_{\text{crit}}$, retain the null hypothesis.</p> <p>When $F_{\text{obt}} \geq F_{\text{crit}}$, reject the null hypothesis.</p>