

## ANOVA TABLES

### Basic Table:

Source Of Variation	Sum Of Squares*	Degrees Of Freedom	Mean Square	F Test Statistic	F Critical Value
Treatments (k) (# of population)	SSTR	k-1 (treatments-1)	SSTR/df = MSTR	MSTR/MSE (mean square of the treatments/ mean square error)	Use F chart
Error (random variable)	SSE	n <sub>T</sub> -k (population - #of treatments)	SSE/df = MSE		
<b>Total</b>	<b>Total</b>	n <sub>T</sub> -1 (population-1)			

### ANOVA Table with Blocks:

- Use when the main category being tested has sub-categories (blocks).

Source Of Variation	Sum Of Squares*	Degrees Of Freedom	Mean Square	F Test Statistic	F Critical Value
Treatments	SST	k-1	SST/k-1 = MSTR	MSTR/MSE	Use F chart
Blocks	SSB	b-1	SSB/b-1 = MSB	MSB/MSE	
Error	SSE	(k-1)(b-1)	SSE/(k-1)(b-1) = MSE		
<b>Total</b>	<b>SST</b>	<b>n<sub>T</sub>-1</b>			

### ANOVA Two Factor with Replication:

- Use when the 2+ main categories being tested have sub-categories.

Source Of Variation	Sum Of Squares*	Degrees Of Freedom	Mean Square	F Test Statistic	F Critical Value
Factor A	SSA	a-1	SSA/a-1 = MSA	MSA/MSE	Use the F chart
Factor B	SSB	b-1	SSB/b-1 = MSB	MSB/MSE	
Interaction	SSAB	(a-1)(b-1)	SSAB/(a-1)(b-1) = MSAB	MSAB/(a-1)(b-1)	
Error	SSE	ab(r-1)	SSE/ab(n-1) = MSE		
<b>Total</b>	<b>SST</b>	<b>n<sub>T</sub>-1</b>			

**\*Sum of squares is calculated by:**  $\sum (x_i - \bar{x})^2$  [take each data point, subtract the sample mean from each, square each difference, and add the squared numbers]