

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 _T -k (population - #of treatments)	SSE/df = MSE		
Total	Total	n _T -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		
Total	SST	n⊤-1			

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		
Total	SST	n _ī -1			

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

For more information, visit a <u>tutor</u>. All appointments are available in-person at the Student Success Center, located in the Library, or online. Adapted from Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2018). Statistics for Business & Economics (13th Edition). Boston, MA: Cengage Learning.