More Than Two Sample Hypothesis Testing Using the ANOVA Table

Source	Sum Squares	df	Mean Square	F Test
Model(Factor)	_____	a - 1	_____	_____
Error	_____	a(n - 1)	_____	
Total	_____	an - 1		

Notes:
a = number of treatments
n = number of items per treatment

Null Hypothesis H_0: $\mu_1 = \mu_2 = = \mu_3 \ldots = \mu_a$
Alternate Hypothesis H_1: At least one treatment is significantly different.

Critical Value: F Distribution Table F 0.05, dfnum, dfdenom

If Reject the Hull, conclude at least one treatment is significantly different.

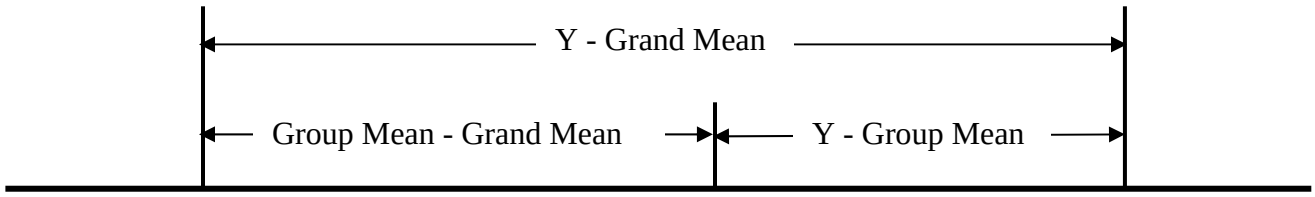
If Fail to Reject, conclude no significant difference between treatments.

ANOVA Model - Sources of Variances

Data Table

Group						**Total**	**Average**
A	16	18	10	12	***19***	75	15
B	4	6	8	10	2	30	6
C	2	10	9	13	11	45	9
					Grand =	**150**	**10**

Pick Y(1,5) = 19



Grand Mean = 10 Group A Mean = 15 Y = 19

Deviations

Y - Grand Mean = Total Deviations
Y - Group Mean = Within Group Deviations
Group Mean - Grand Mean = Between Groups Deviations

Variations

Sum of Squares Total = Sum of Squares Between + Sum Squares Within
Sum of Squares Total = Sum of Squares Treatment + Sum Squares Errors
$SST = SST_{reat} + SSE$

a = Number of Groups
n = Number of Items per Group
an = Total Number of Items

Source of Variation	**Sum Squares**	**df**	**Mean Square**
Treatment	SST_{reat}	a - 1	$SST_{reat} / (a-1)$
Error	SSE	a(n - 1)	SSE / [a(n - 1)]
Total	SST	an - 1	

Note: (a - 1) + a(n - 1) = a - 1 + an - a = an - 1

$F_{Test} = MST_{reat} / MSE$