

# Comparison of means of populations with one-way ANOVA

Run *anova.py* to start the GUI application.

ANOVA

Groups

Traditional 4, 1, 3, 1, 2, 4, 2, 3, 0, 3, 3, 4, 5, 6, 5, 2

Modern 6, 2, 3, 5, 3, 4, 1, 4, 2, 4, 5, 3

Reactionist 6, 5, 7, 6, 7, 9, 8, 8

$\alpha = 0.0500$  Calculate

Load single group from CSV

Delete Group

Add Group

Load all groups from CSV

ANOVA

Groups

Traditional 4, 1, 3, 1, 2, 4, 2, 3, 0, 3, 3, 4, 5, 6, 5, 2

Modern 6, 2, 3, 5, 3, 4, 1, 4, 2, 4, 5, 3

Reactionist 6, 5, 7, 6, 7, 9, 8, 8

$\alpha = 0.0500$  Calculate

Result

Group Parameters

	n	$\bar{x}$	$\sigma$	$\Sigma(x - \bar{x})^2$
1	16	3.00	1.63	40.00
2	12	3.50	1.45	23.00
3	8	7.00	1.31	12.00

Anova

	df	SS	MS
Between Groups	2	90.89	45.44
Within Groups	33	75.00	2.27
Total	35	165.89	-

Test

F-ratio = 19.9956  $F_\alpha = 3.2849$

F-ratio >  $F_\alpha$ .  $H_0$  is rejected. Means are not equal.

Student marks, slide 144