One-Way Analysis of Variance for Independent or Correlated Samples

[Traducción en español]

The logic and computational details of the one-way ANOVA for independent and correlated samples are described in Chapters 13, 14, and 15 of Concepts and Applications.

Procedure:

- **Initial Setup:**
  Enter the number of samples in your analysis (2, 3, 4, or 5) into the designated text field, then click the «Setup» button for either Independent Samples or Correlated Samples to indicate which version of the one-way ANOVA you wish to perform.
- **Entering Data Directly into the Text Fields:**
  After clicking the cursor into the scrollable text area for Sample 1, enter the values for that sample in sequence, pressing the carriage return key after each entry except the last. (On a Macintosh platform, the carriage return key is labeled 'Return'; on a Windows platform it is labeled 'Enter.') Perform the same procedure for the other samples in your analysis.
- **Importing Data via Copy & Paste:**
  Within the spreadsheet application or other source of your data, select and copy the column of data for sample 1. Then return to your web browser, click the cursor into the text area for sample 1 and perform the 'Paste' operation from the 'Edit' menu. Perform the same procedure for the other samples in your analysis.
- **Data Check:**
  For each sample, make sure that the final entry is **not** followed by a carriage return. (A carriage return after the final entry in a sample will be interpreted as an extra data entry whose value is zero. Importing data via the copy and paste procedure will almost always produce an extra carriage return at the end of a column.) After all values for a sample have been entered, click the cursor immediately to the right of the final entry in the list, then press the down-arrow key. If an extra line is present, the cursor will move downward. Extra lines can be removed by pressing the down arrow key until the cursor no longer moves, and then pressing the 'Backspace' key (on a Mac platform, 'delete') until the cursor stands immediately to the right of the final entry.

  If you are performing a correlated-samples analysis, also make sure that the values for each sample are entered in the appropriate sequence. Note that a correlated-samples analysis presupposes equal numbers of observations for each sample in the analysis.
- **When all** sample values have been entered, click the button labeled «Calculate.» For independent samples the default analysis is a standard weighted- means analysis. If you wish to perform an unweighted- means analysis, click the «Unweighted» button before calculating.

Note that when the number of samples is **k**=2, the analysis of variance (standard

weighted- means analysis) is equivalent to a non-directional **t**-test with $\mathbf{F}=\mathbf{t}^2$.

Setup

Number of samples in analysis = 4

Independent Samples / Correlated Samples	Independent Samples k=4 standard weighted-means analysis
Unweighted	Click this button only if you wish to perform an unweighted-means analysis. Advice: do not perform an unweighted-means analysis unless you have a clear reason for doing so.
Weighted	Click this button to return to a standard weighted-means analysis

Data Entry

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
0 0 0 0 0.68 control	0.64 1.88 1.27 0 0 inmunizado	2.42 1.36 0.64 1.27 0.1 infectado	1.42 1.05 1.05 0.78 Inmunizado e infectado	

Reset Calculate

Data Summary

	Samples					
	1	2	3	4	5	Total
N	5	5	5	4		19
ΣX	0.68	3.79	5.79	4.3		14.56
Mean	0.136	0.758	1.158	1.075		0.766316
ΣX^2						

	0.4624	5.5569	9.7385	4.8298		20.5876
Variance	0.09248	0.67102	0.75842	0.0691		0.523891
Std.Dev.	0.304105	0.819158	0.870873	0.262869		0.723803
Std.Err.	0.136	0.366339	0.389466	0.131434		0.166052

standard weighted-means analysis

ANOVA Summary Independent Samples k=4

Source	SS	df	MS	F	P
Treatment [between groups]	3.135062	3	1.045021	2.49	0.099981
Error	6.29498	15	0.419665		
Ss/Bl					
Total	9.430042	18			

Graph Maker

Ss/Bl = Subjects or Blocks depending on the design.
Applicable only to correlated-samples ANOVA.

Tukey HSD Test

This test will be performed only if K>2 and the analysis of variance yields a significant F-ratio.

M1 = mean of Sample 1
M2 = mean of Sample 2
and so forth.

HSD = the absolute [unsigned] difference between any two sample means required for significance at the designated level. HSD[.05] for the .05 level; HSD[.01] for the .01 level.

Print this Page

Home Click this link **only** if you did not arrive here via the VassarStats main page.

©Richard Lowry 2001-2019

All rights reserved.