

Release notes for StatCrunch August 2015 updates

This document describes the August 2015 StatCrunch updates.

Major additions:

- The bubble plot has been added to the StatCrunch Graph menu. As an extension of a scatter plot where points are sized by a third variable, the bubble plot allows users to visualize data in higher dimensions. See details at https://www.statcrunch.com/5.0/example.php?example_id=97.
- A new paint feature has been added to most StatCrunch graphs. The paint tool allows users to annotate StatCrunch graphs. See details at https://www.statcrunch.com/5.0/example.php?example_id=98.
- The StatCrunch two way ANOVA procedure now offers Tukey HSD results for each factor. See page 2 for details.

Minor fixes and enhancements:

- Scatter plot upgraded to allow for different types of points (filled, hollow or transparent circles) and the ability to add a column to the hover information.
- An issue was fixed that stopped overlay information from appearing when saving/copying graphs with legends. The same issue was also fixed for multiple graphs per page.
- Different distributions have been added when simulating data with the mean/median applet.

Two way ANOVA updated for Tukey HSD

The **Stat > Two way ANOVA** procedure formerly offered the Tukey HSD test only for cells. Every cell was compared to every other cell. Now **Two way ANOVA** also offers Tukey HSD for each factor. In this example, the dependent variable Y measures the treatment's effect. The two factors are Gender (m,f) and AgeGroup (g1,g2,g3). The Tukey HSD P-value comparing the two Gender levels is 0.0292. For AgeGroup, there are three levels, so there are three possible comparisons: (g1,g2), (g1,g3), and (g2,g3). The difference for (g1,g2) is shown under the subheading "g1 subtracted from", on the line that starts with "g2". The P-value is 0.4953. The P-values for the other two AgeGroup pairs are shown on subsequent lines.

StatCrunch | Applets | Edit | Data | Stat | Graph | Help

Row	Gender	AgeGroup	Y	var4	var5
1	m	g1	20		
2	m	g1	27		
3	m	g2	23		
4	m	g2	21		
5	m	g3	33		
6	m	g3	33		
7	f	g1	25		
8	f	g1	19		
9	f	g2	32		
10	f	g2	26		
11	f	g3	44		
12	f	g3	43		

Options

Analysis of Variance results:
 Responses: Y
 Row factor: Gender
 Column factor: AgeGroup

ANOVA table					
Source	DF	SS	MS	F-Stat	P-value
Gender	1	85.333333	85.333333	8.1269841	0.0292
AgeGroup	2	547.16667	273.58333	26.055556	0.0011
Interaction	2	76.166667	38.083333	3.6269841	0.0928
Error	6	63	10.5		
Total	11	771.66667			

Tukey HSD results (95% level) for Gender:
 f subtracted from

	Difference	Lower	Upper	P-value
m	-5.3333333	-9.9110859	-0.75558078	0.0292

Tukey HSD results (95% level) for AgeGroup:
 g1 subtracted from

	Difference	Lower	Upper	P-value
g2	2.75	-4.2802999	9.7802999	0.4953
g3	15.5	8.4697001	22.5303	0.0012

g2 subtracted from

	Difference	Lower	Upper	P-value
g3	12.75	5.7197001	19.7803	0.0034

Tukey HSD results (95% level) for Gender*AgeGroup:
 f,g1 subtracted from

	Difference	Lower	Upper	P-value
f,g2	7	-5.8961774	19.896177	0.3689
f,g3	21.5	8.6038226	34.396177	0.0043
m,g1	1.5	-11.396177	14.396177	0.996