

Ch2 Lab Results - Hypothesis Testing

*1. What conclusions are warranted about the life satisfaction scores of 4100 students relative to
 * UW students at large assuming researchers had no expectation about the results?

DATA LIST FREE / sat.
 BEGIN DATA
 20 17 19 15 19 18 14 21
 END DATA.

DESCR /VARI = sat.

	N	Minimum	Maximum	Mean	Std. Deviation
sat	8	14.000	21.000	17.87500	2.416461
Valid N (listwise)	8				

*2. Use SPSS's TTEST command to perform the preceding analysis.

TTEST /TESTVALUE = 15 /VARI = sat.

	N	Mean	Std. Deviation	Std. Error Mean
sat	8	17.87500	2.416461	.854348

Test Value = 15

	t	df	Sig. (2-tailed)	95% Confidence Interval of the Difference		
				Mean Difference	Lower	Upper
sat	3.365	7	.012	2.875000	.85479	4.89521

*3. Perform an equivalent test using MANOVA and GLM.
 * Show correspondences to the TTEST results.

COMPUTE sat0 = sat-15.
 MANOVA sat0 /PRINT = CELL.

	Mean	Std. Dev.	N	95 percent Conf. Interval
For entire sample	2.875	2.416	8	.855 4.895

Source of Variation	SS	DF	MS	F	Sig of F
WITHIN CELLS	40.88	7	5.84		
CONSTANT	66.13	1	66.13	11.32	.012

GLM sat0 /PRINT = DESCR.

Dependent Variable: sat0

	Mean	Std. Deviation	N
2.87500	2.416461		8

Dependent Variable: sat0

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.000 ^a	0			
Intercept	66.125	1	66.125	11.32	.012
Error	40.875	7	5.839		
Total	107.000	8			
Corrected Total	40.875	7			

a. R Squared = .000 (Adjusted R Squared = .000)

*4. What conclusion would be appropriate if prior research suggests that 4100 graduates
 * are more satisfied with their lives than other UW students?

*5. A comparison group of 8 general UW students completed the UTLS: MN=14.75, SD=4.367.
 * Determine whether the two groups differ significantly in life satisfaction.

*6. Copy and run the following commands to enter the data in SPSS.
 * Perform the analysis corresponding to that completed in #5.

DATA LIST FREE / grp sat.
 BEGIN DATA
 1 17 1 12 1 16 1 12 1 18 1 22 1 13 1 8
 2 20 2 17 2 19 2 15 2 19 2 18 2 14 2 21
 END DATA.

TTEST /GROUP = grp /VARI = sat.

	grp	N	Mean	Std. Deviation	Std. Error Mean
sat	1.000	8	14.75000	4.367085	1.543998
	2.000	8	17.87500	2.416461	.854348

Levene's Test for Equality of Variances

t-test for Equality of Means

	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
sat	3.007	.105	-1.771	14	.098	-3.125000
			-1.771	10.919	.104	-3.125000

t-test for Equality of Means

95% Confidence Interval of the Difference

	Std. Error Difference	Lower	Upper
sat	1.764607	-6.909706	.659706
	1.764607	-7.012388	.762388

*7. Use GLM to perform same analysis and obtain descriptive statistics.
 * Perform the analysis by hand and compare to the SPSS output.

GLM sat BY grp /PRINT = DESCR.

Dependent Variable: sat

grp	Mean	Std. Deviation	N
1.000	14.75000	4.367085	8
2.000	17.87500	2.416461	8
Total	16.31250	3.772157	16

Dependent Variable: sat

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	39.063 ^a	1	39.063	3.136	.098
Intercept	4257.563	1	4257.563	341.826	.000
grp	39.063	1	39.063	3.136	.098
Error	174.375	14	12.455		
Total	4471.000	16			
Corrected Total	213.438	15			

a. R Squared = .183 (Adjusted R Squared = .125)

MANOVA sat BY grp(1 2) /PRINT = CELL.

FACTOR	CODE	Mean	Std. Dev.	N
grp	1	14.750	4.367	8
grp	2	17.875	2.416	8
For entire sample		16.313	3.772	16

Source of Variation	SS	DF	MS	F	Sig of F
WITHIN CELLS	174.38	14	12.46		
grp	39.06	1	39.06	3.14	.098
(Model)	39.06	1	39.06	3.14	.098
(Total)	213.44	15	14.23		

R-Squared = .183 Adjusted R-Squared = .125