

## SPSS for One-sample, Two-sample, and Paired T-tests

### One-sample T-test

#### I. Data File Format

- need one column that contains the data for each replicate (each row). See the data file example below:

```

7.07
5.30
4.91  etc....
    
```

#### II. Analysis

(1) From the pull-down menu:

*Analyze* → *Compare Means* → *one-sample T-test* <click on this>

(2) (a) Click to highlight the dependent variable column name in the left window menu, then click on the arrow to move it to the right window to define the DEPENDENT VARIABLE.

(b) In the “*Test Value*” window at the bottom right, type in the expected value against which you want to test the sample mean. Then click the “*OK*” button to run the analysis.

#### III. Result

**One-Sample Test**

Test Value = 30						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
CL	4.302	767	.000	1.670	.908	2.432

### Two-sample T-test

#### I. Data File Format

- need two columns; one that specifies which treatment group each data value comes from and one that contains the data for each replicate. See the data file example below; column 1 = treatment, column 2 = data:

```

1    7.07
1    5.30
2    4.91
2    5.72  etc....
    
```

#### II. Analysis

(1) From the pull-down menu:

*Analyze* → *Compare Means* → *independent-samples T-test* <click on this>

(2) Click to highlight the dependent variable column name in the left window, then click on the arrow to move it to the “*Test Variable*” window to define the DEPENDENT VARIABLE. Then highlight the independent variable column name in the left window, then click the arrow to move it to the “*Grouping Variable*” window.

(3) Click on the “*Define Groups*” button to reveal a window in which you type in the letters, numbers, or words (case sensitive) that define the two treatment groups: “*Test Group 1*” and “*Test Group 2*”. Click the “*Continue*” button to return to the previous window. Then click the “*OK*” button to run the analysis.

#### III. Result

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
CL	Equal variances assumed	35.907	.000	-33.766	766	.000	-16.634	.4926	-17.6014	-15.6672
	Equal variances not assumed			-34.178	691.063	.000	-16.634	.4867	-17.5899	-15.6787

**Paired T-test**

**I. Data File Format**

- need two columns; one that contains the first number in each data set pair (e.g., “before” data) and another column that contains the second number in each data set pair. Pairs of numbers must be in the same row. See the data file example below:

```

5.43  7.07
4.88  5.30
3.29  4.91  etc...
    
```

**II. Analysis**

- (1) From the pull-down menu:

*Analyze* → *Compare Means* → *paired-samples T-test* <click on this>

- (2) Click to highlight the two variables column names in the left window menu, then click on the arrow to move them to the right “*Paired Variables*” window. Then click the “*OK*” button to run the analysis.

**III. Results**

**Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	CL - RECAP	-1.4280	11.27935	2.25587	-6.0839	3.2279	-.633	24	.533