Analysis Decision Guide

Step 1: Choosing the Right Analysis				
1. I am more interested in determining…				
What is happening or in what quantity		*Why something is happening*		*Both what and why*
Use quantitative methods		Use qualitative methods		Use mixed methods (can be qual and quant)
2. My data is primarily…				
Numbers		*Text, pictures, interviews, etc*		*Both numbers and text*
Use quantitative methods		Use qualitative methods		Use mixed methods (can be qual and quant)

Step 2: Some Statistical Analysis for Quantitative Methods							
What am I looking at?	Statistical Analysis	Number of Independent Variables (IVs)	Type of IVs	Number of Dependent Variables (DVs)	Type of DVs	Number of covariates (control variables)	Question answered
Group differences	Chi square	1	Nominal (categorical)	1	Nominal (categorical)	0	Is there a difference between groups?
	t-test (can have independent groups or the same group measured at different times)	1	Categorical (groups, such as male/female)	1	Interval (Continuous)	0	Is there a difference between 2 groups?
	One-way ANOVA	1	Categorical (groups, such as gender or grade level)	1	Interval (Continuous)	0	Is there a difference between 2 or more groups?
	Factorial ANOVA	2 or more					
	Repeated Measures ANOVA (same groups measured at different times)	1					
	ANCOVA	1 or more	Categorical (groups, such as gender or grade level)	1	Interval (Continuous)	1 or more	Is there a difference between 2 or more groups, after controlling for certain variables?
	MANOVA	1 or more	Categorical (groups, such as gender or grade level)	2 or more	Interval (Continuous)	0	Is there a difference between 2 or more groups on 2 or more DVs?

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	MANCOVA	1 or more	Categorical (groups, such as gender or grade level)	2 or more	Interval (Continuous)	1 or more	Is there a difference between 2 or more groups on 2 or more DVs, after controlling for certain variables?
Relationship	Correlation	1 (but aren't sure which is which)	Interval (Continuous for most common correlations)	1 (but aren't sure which is which)	Continuous for most common correlations	0	Is there a relationship between 2 variables?
Relationship or prediction	Multiple regression	2 or more (1 would be linear regression)	Interval (Continuous)	1	Interval (Continuous)	0 (technically, regression automatically isolates impact of a variable while controlling for all others)	What are the best predictors of a DV? Also, degree of relationship between IVs and DV.
Relationship or prediction	Multivariate multiple regression	2 or more (1 would be linear regression)	Interval (Continuous)	2 or more	Interval (Continuous)	0 (technically, regression automatically isolates impact of a variable while controlling for all others)	What are the best predictors of several DVs? Also, degree of relationship between IVs and DVs.
Prediction of group membership or odds	Logistic regression	1 or more	Interval (continuous) or categorical	1	Dichotomous (usually 0 or 1, where 0 is "not in group")	0	What are the odds of being in a certain group? Essentially, trying to predict group membership

Adapted from: http://www.csun.edu/~amarenco/Fcs%20682/When%20to%20use%20what%20test.pdf
and http://www.ats.ucla.edu/stat/mult_pkg/whatstat/

Computations by Data Type

OK to Compute…	Nominal	Ordinal	Interval	Ratio
frequency distribution.	Yes	Yes	Yes	Yes
median and percentiles.	No	Yes	Yes	Yes
add or subtract.	No	No	Yes	Yes
mean, standard deviation, standard error of the mean.	No	No	Yes	Yes
ratio or coefficient of variation.	No	No	No	Yes

Quantitative Analysis in Excel Cheat Sheet

Many of the most common quantitative analyses can be done in Excel without the need for a more expensive and/or more complicated data analysis package (such as SPSS, SAS, R, Python, etc.). Below, we have listed some commands for some of these analyses.

Descriptive Statistics

Analysis Type	**Excel Command**
Frequency	=count(select cells for which you would like to calculate the frequency)
Range*	=min(select cells) =max(select cells) *two separate calculations

Central Tendency

Analysis Type	**Excel Command**
Mean	=avg(select cells)
Median	=median(select cells)
Mode	=mode(select cells)

Distribution Spread

Analysis Type	**Excel Command**
Variance	=var(select cells)
Standard Deviation	=stdev(select cells)

Relationship, Mean Comparison, and a few Other Fun Options

To use Excel for some of the more complex analyses, you need to load the Analysis ToolPak in your version of Excel.

1. Click on File
2. Select Options
3. From the toolbar on the left, select Add-Ins
4. Click on Analysis ToolPak (**NOT** ToolPak VBA), at the bottom of the screen click on Go (next to Manage Excel Add-ins).
5. Click on the box nest to Analysis ToolPak, then click OK

You should now have a data analysis option in your Data tab in the top toolbar. If you click on data analysis you will have options for ANOVA, T-tests, Z-tests, Regression, and Correlation, as well as a few other fun options (like random number generation, rank and percentile, histograms, and others).