

Which statistical test to use?

To identify the correct test, one must first be able to identify variables, categories of variables, scale of measurement of variables, then determine whether variables are independent (predictor) or dependent (criterion).

Statistical Test	IV (or Variable X)	DV (or Variable Y)	Special Note	Example
One-sample t-test	----	Quantitative	One variable compared against some set score.	Does Mrs. Jones' 8 th grade PE class weigh more than national mean of 105 lbs?
Two independent samples t-test	Qualitative (nominal)	Quantitative	IV has two groups	Is there a difference in weight in lbs. between males and females in Mrs. Jones' PE class?
Correlated samples t-test	Qualitative (nominal)	Quantitative	Scores are linked or matched in some way across the two sets of scores.	Does the weight of 8 th grade students change before and after taking a PE class for one semester?
Pearson r	Quantitative	Quantitative	Works when IV and DV identified, or one wants correlation between two variables that are not identified as IV or DV.	Is there an association between number of hours studied the week before a test and scores obtained on that test?
ANOVA	Qualitative (nominal)	Quantitative	Two or more groups for the IV. Mathematically same as two-group t-test if only two groups examined.	Is there a difference in mean weight between 6 th , 7 th , and 8 th grade PE classes?
Linear Regression	Quantitative (and also Qualitative, but not covered in EDUR 8131)	Quantitative	Often used to obtain a prediction equation or determine which among several IVs contribute to predicting or explaining variation in DV.	Which among house size, age of house, or number of features in house best predict sales value of house in dollars?
Chi-square Goodness-of-fit	----	Qualitative (nominal)	Only one variable, frequencies of category for that variable compared against theoretical (expected) values for those categories.	Is student sex equally distributed within an educational research course (i.e., are there equal numbers of males and females)?
Chi-square Test of Association	Qualitative (nominal)	Qualitative (nominal)	Are two qualitative (nominal) variables associated?	Do dropout rates differ among three racial groups in Georgia (Black, Hispanic, and White students)? Note that the DV dropout is nominal (in school or out of school).