The ANOVA for Independent Groups — **Analysis of 2-Between-Group Data with a Quantitative DV**

Application: To compare means of a quantitative variable obtained from 2 independent groups.

Research Hypothesis: The researcher hypothesized that stores with separate reptile departments would have reptiles of better overall quality than stores that did not have separate reptile departments.

H0: for this analysis: Pet shops which do not have separate reptile departments have the same mean reptile quality ratings as shops that do have separate reptile departments.

Analyze ➔ Compare Means ➔ One-way ANOVA
- highlight the "Dependent" variable (be sure it is **quantitative**) and
    click the arrow
- highlight the "Factor" (IV, grouping) variable (be sure it is **qualitative**)
    and click the arrow
- "Options" — check that you want "Descriptive Statistics
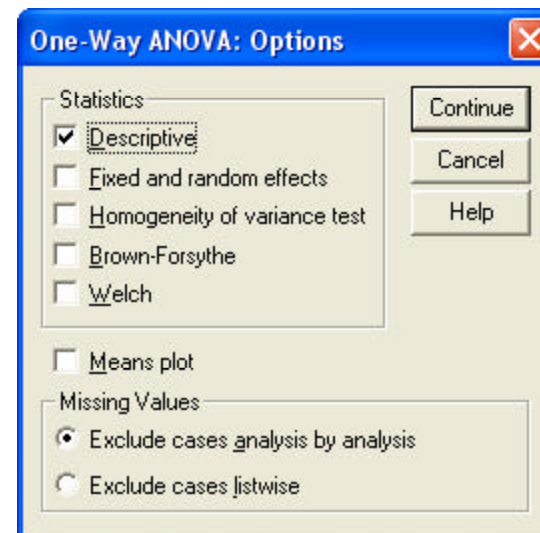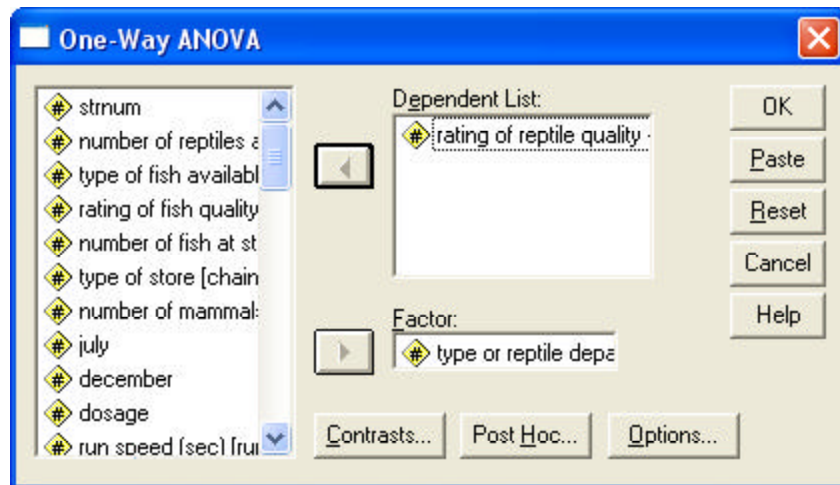
Descriptives

'rating of reptile quality - 1-10 scale'

	N	Mean	Std. Deviation	Std. Error
not separate	6	4.00	1.90	.77
separate	6	7.33	1.86	.76
Total	12	5.67	2.50	.72

ANOVA

'rating of reptile quality - 1-10 scale'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	33.333	1	33.333	9.434	.012
Within Groups	35.333	10	3.533		
Total	68.667	11			

df(effect) & df(error) would be be reported as (1, 10)

Mean Square Error (Mse) for this analysis

F-value for this analysis

p-value -- there is a significant mean difference

Values to be reported

Reporting the Results -- with univariate statistics included

Those stores without separate reptile departments displayed reptiles with a mean quality rating of 4.0 ($\underline{S}$ = 1.90), whereas those that did have separate departments had a mean rating of 7.33 ($\underline{S}$ = 1.86). As hypothesized, pet stores with separate reptile departments had significantly higher mean ratings than those without separate departments, $\underline{F}$(1,10) = 9.43, $\underline{p}$ = .012, $\underline{Mse}$ = 3.53.

Another way to report the results is to drop the univariate statistics from the paragraph above and instead provide a table or a figure similar to those shown below.

Table 1.   Summary of reptile qulaity for each type of pet store

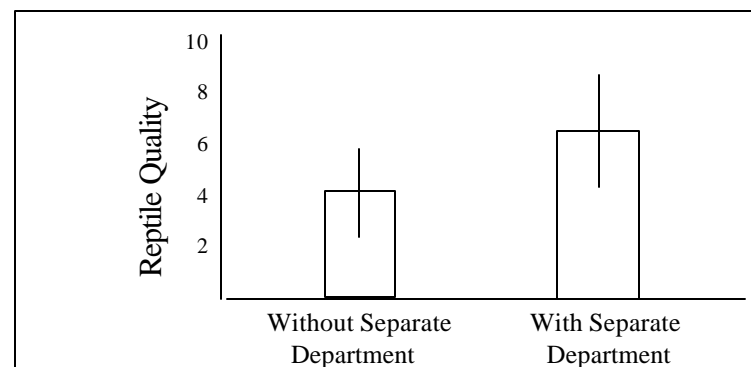| Type of Reptile Department	Mean	Std	n
Without a Separate Reptile Dept.	4.00	1.90	6
With a Separate Reptile Dept.	7.33	1.86	6

Figure 1. Mean reptile quality for each type of reptile department (+/- 1 std shown)