How can I graph group means and standard deviations for ANOVA in Stata?

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In order to graph group means and standard deviations for ANOVA (Analysis of Variance) in Stata, first load the data set containing the variables of interest. Then, use the "graph bar" command to create a bar graph with the group means for each variable. Next, use the "graph twoway (bar mean) (rcap sd)" command to add error bars representing the standard deviations to the bar graph. Additionally, the "by" option can be used to create separate graphs for each group. This method allows for a visual representation of the differences in means and variability between groups, aiding in the interpretation of ANOVA results.

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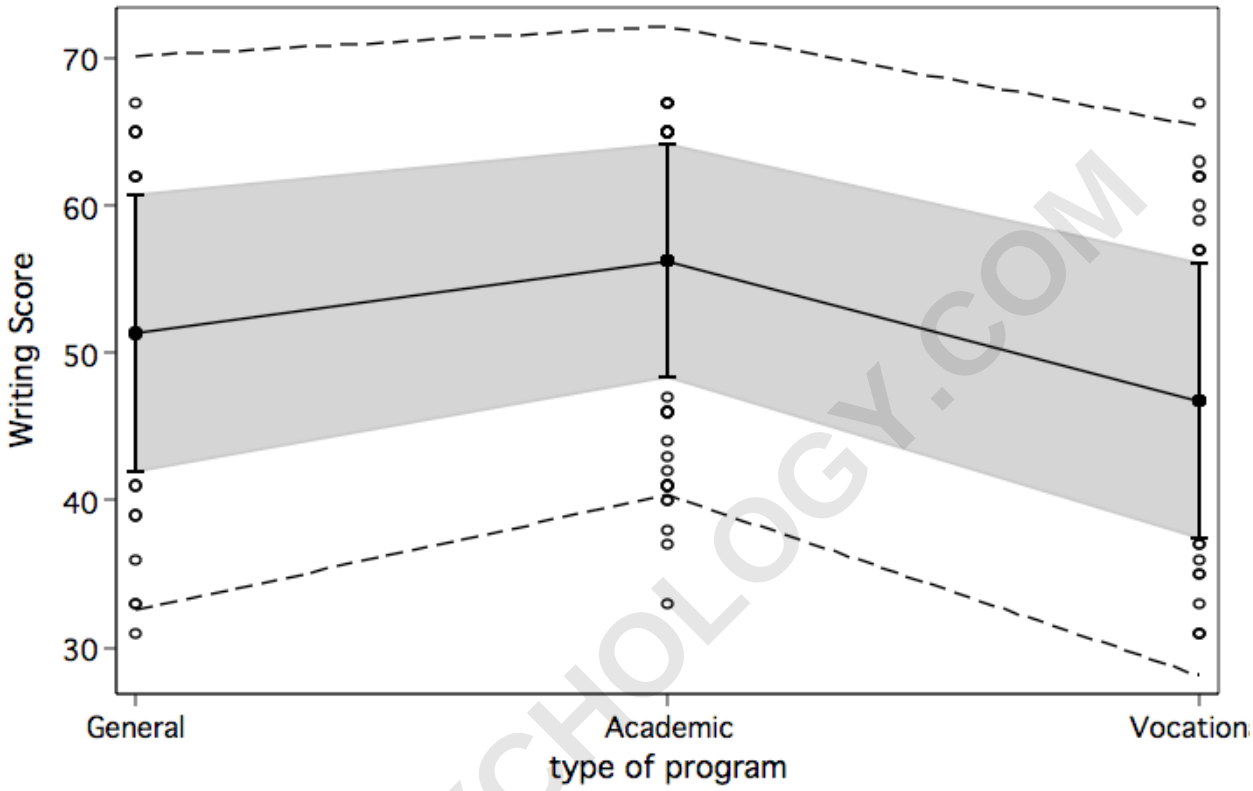
A user-written command called meansdplot that will produce this
type of graph. To get this program just type the following into the Stata command box
and follow the instructions: search meansdplot (see How can I use the search command to search for programs and get additional help? for more information about using search).

For the first example, we will set the outer fence at 2 standard deviations to check
for outliers. We will leave the inner fence at the default value of 1 standard deviation.

use https://stats.idre.ucla.edu/stat/stata/notes/hsb2, clear

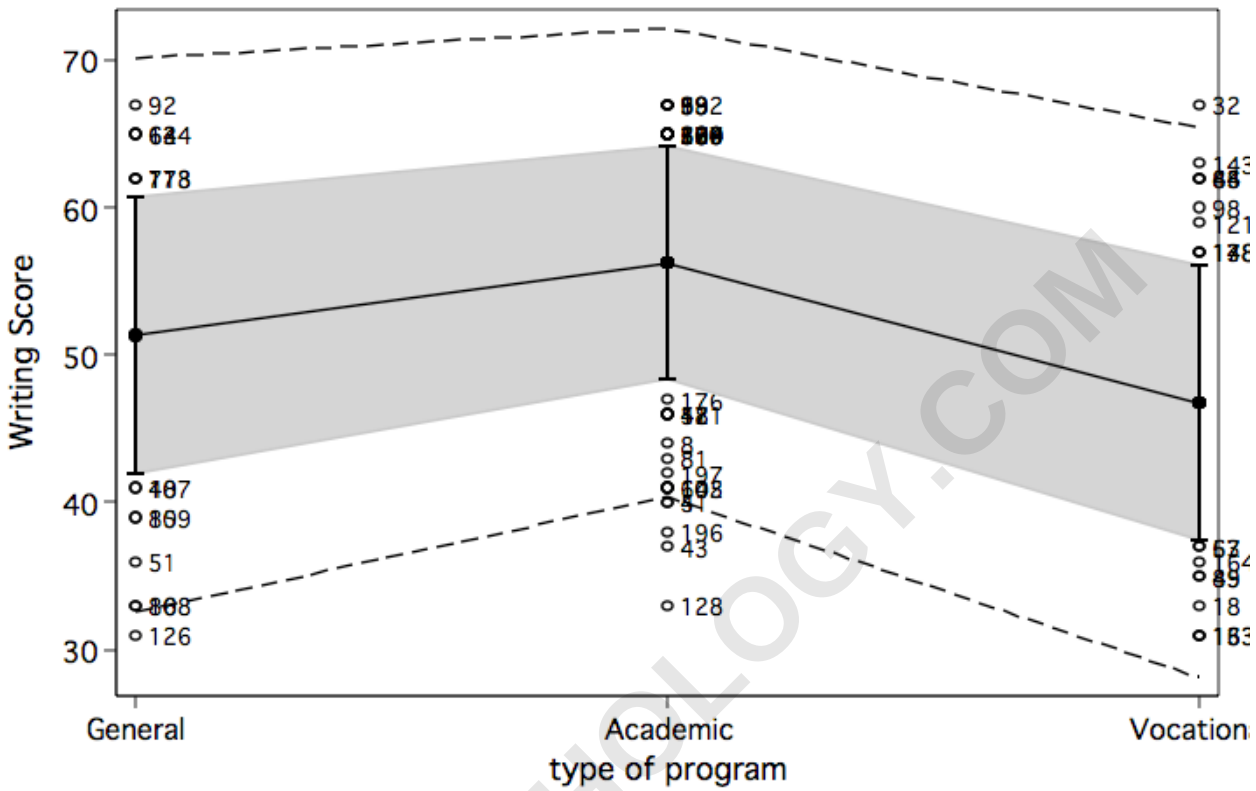
meansdplot write prog, outer(2) xlabel(1 "General" 2 "Academic" 3 "Vocational") ytitle(Writing Score)



It is also possible to put marker labels on the values to identify the
outliers. Don't worry about the labels which are all jumbled on top of one another,
just look at the ones you can read clearly, like 126, 128 and 32.

meansdplot write prog, outer(2) xlabel(1 "General" 2 "Academic" 3 "Vocational") ///

ytitle(Writing Score) mlabel(id)



meansdplot can also be used with multiple group variables after using egen with the group option.

egen grp = group(prog female)

meansdplot write grp, outer(2) ytitle(Writing Score) /// xlabel(1 "m-gen" 2 "f-gen" 3 "m-acad" 4 "f-acad" 5 "m-voc" 6 "f-voc")