

4) From our survey we can calculate how well you think you'll do on Exam 1 as a function of how much you think you'll like this class. Here is a table of statistics based on our survey:

	Not at all	Just a little	A fair amount	Very much
n	14	56	75	6
mean	81.64	84.04	86.32	93.67
SS_{within}	1127.2144	2873.9296	4184.32	259.3334

n_{total}	151
grand mean	85.3311
SS_{total}	9219.4437

Calculate the standard errors of the mean for each of the 4 groups.

Make a bar graph of the means for each of the 4 groups with error bars as the standard error of the means.

Using an alpha value of $\alpha = 0.01$, is there difference in predicted Exam 1 score across the 4 groups of how much you think you'll like Psych 315?

$$SS_{between} = \sum n(\bar{x} - \bar{\bar{x}})^2 = 14(81.64 - 85.3311)^2 + \dots + 6(93.67 - 85.3311)^2 = 774.655$$

$$SS_{within} = 1127.2144 + \dots + 259.3334 = 8444.8$$

or (shortcut)

$$SS_{between} = SS_{total} - SS_{within} = 9219.4437 - 8444.8$$

	SS	df	MS	F
between	774.655	$k-1$ 3	$\frac{774.655}{3}$ 258.2185	$\frac{258.2185}{57.4476}$ 4.4949
within	8444.8	$N-k$ 151-4 147	$\frac{8444.8}{147} =$ 57.4476	
Total	9219.4437			