Barbara Sander, Biol 108 Spring 2021

Results for Activity 6

I performed an ANOVA (Analysis of Variance) for each section's data set and on a combined data set where I have removed outliers. **For your assignment you can either use your section's data set or the combined class data set** (clearly indicate which you chose). When using the combined data set, ignore that outliers were removed, I do not want to read about this in the assignments. Focus on the interpretation, biology, the trends, difference vs no difference etc. Do the results match your hypothesis? If not, why not? If yes, what is the reason for the results?

If an ANOVA is significant, it means that at least one of the values is considered different from the others. A post-hoc test compares each mean against the other. If a post-hoc test has a significant result it shows that those two means most likely come from different populations (sources) ($p<0.05$), the difference cannot be explained by the overall variation - you would be wrong with that assumption 5% of the time.

AM

AM	normal light	no light	increased O2	
	10	12	3	
	6	5	4	The analysis of the differences between the treatments (ANOVA) found
	3	4	2	no signficant difference among the means
	5	2	3	F = 1.33; with df = 2, 24 and with p = 0.28
	4	2	5	
	4	2	5	
	5	3	4	
	4	2	2	
	6	3	4	
mean	5.222222	3.888889	3.555556	
Stdd	2.048034	3.218868	1.130388	

PM

PM	normal light	no light	increased O2	
	6	3	4	The analysis of the differences between the treatments (ANOVA) found
	6	2	2	no signficant difference among the means
	5	7	5	F = 0.83; with df = 2, 21 and with p = 0.45
	9	4	7	
	3	3	2	
	2	2	2	
	4	4	3	
	2	2		
mean	4.625	3.375	3.571429	
Stdd	2.386719	1.685018	1.902379	

class data set (AM+PM) with outliers/mistakes removed

	normal light	no light	increased O2		
mean	4.625	3.125	3.6875	The analysis of the differences between the treatments (ANOVA) found	
stdd	1.784	1.408	1.493	a signficant difference among the means	
				F = 3.73; with df = 2, 45 and with p = 0.03	
				a post-hoc comparison (Tukey Test) showed	
				normal vs no light	significant
				normal vs elevated O2	significant
				no light vs elevated O2	not significant