

Assignment 6

In a 4 x 2 x 3 factorial experiment, with n = 2 replications per treatment, the growth of *E. Coli* in four different temperatures (35, 36, 37 and 38 C), under three different concentrations of oxygen (anaerobic (A), 0.5 atmospheric oxygen (0.5AO) and atmospheric oxygen (AO), using two growth media (Media A and Media B) was measured. The table below shows the growth of *E. Coli* in the two replicates.

	Media A						Media B					
	A		0.5AO		AO		A		0.5AO		AO	
35	5.31	8.04	6.32	9.34	8.51	10.31	6.28	11.08	11.01	18.22	5.61	8.44
36	5.01	8.86	6.53	8.28	10.48	15.90	6.01	7.39	10.02	19.49	6.36	7.00
37	6.33	6.99	7.92	14.07	10.5	14.53	6.51	7.05	11.31	12.23	7.48	11.94
38	7.01	8.21	7.53	10.55	10.92	16.03	6.53	7.59	18.3	21.75	8.00	12.46

A) **In SAS** (upload the SAS program in Blackboard under Assignment 6A)

A1. Prepare an appropriate SAS program that will address questions on B. Grading will be based in your ability to include all the procedures that are necessary to answer questions on B.

B) In a MS word Document (upload the document in Blackboard under Assignment 6B)
Answer the following questions:

B1: Analyze the data using Proc Mixed. All factors are fixed. Do not use other procedures to analyze data, use only Proc Mixed to make inferences for this assignment. Include all other regular procedures such as Proc Print and global statements.

B2: Indicate the factor(s) or interactions among factors that you can make appropriate inferences and are significant in this experiment (use and alpha = 5%). Provide a clear rationale for your conclusion on regard to the factors and interactions that are significant.

B3: Suppose that this was part of the results that will be included in a peer-reviewed publication.

- Use a Tukey post-hoc comparisons with an alpha = 0.05.
- Using the manual step-by-step procedure discussed in class, separate appropriate means using letters. Provide clear evidence of the step-by-step procedure associated with the post-hoc comparison used in a) above.
- Prepare a figure to show the averages of each treatment including letters and standard errors as discussed in class. Properly label the Y- and X-axis and remember that the title of the figure should stand alone. Write a statement as if you were writing the results and discussion sections of the paper (at least 100 words).