

PLSc 724 - HOMEWORK # 5

1. Given the following data set:

Replicate	Treatment					
	1	2	3	4	5	6
1	43	52	37	26	77	83
2	52	67	42	17	92	56
3	34	41	21	9	77	67

- Compete the analysis of variance.
- Calculate the coefficient of variation.
- Calculate the LSD (0.05). If the F-test for treatments is significant at the 95% level of confidence, show what means are different using lower case letters.
- Delete  $Y_{32}$  and obtain an estimate for the missing observation.
- Do parts a through c using the estimate for the missing observation,  $Y_{32}$ .

2. Given the following set of yield data (Mg/ha) for barley treated with different levels of nitrogen fertilizer:

	Treatment (kg N/ha)											
	0			50			100			150		
	Replicate			Replicate			Replicate			Replicate		
Sam	1	2	3	1	2	3	1	2	3	1	2	3
1	2.3	1.3	1.7	3.9	2.9	3	5.5	5.9	5.4	7.0	6.4	5.6
2	1.9	1.5	2.3	4.0	3.5	3.4	5.2	5.7	5.3	7.1	6.9	6.0
3	2.0	1.2	1.2	3.5	3.3	4.3	5.6	5.4	5.9	7.2	6.3	6.2

**Using SAS and assuming the experiment was randomized as a CRD**

- Complete the ANOVA and perform the F-test at the 95 and 99% levels of confidence using the appropriate error term.
- Calculate the correct coefficient of variation if the one computed by SAS is incorrect.
- Calculate the LSD and Tukey's statistic ( $T_\alpha$ ) values for  $\alpha=0.05$ .
- If the F-test for treatments is significant, indicate what means are not significantly different using lower case letters. Do this using the LSD- and  $T_\alpha$  -values for  $\alpha=0.05$ .