

Practice Exam 2

Statistics 424

- 1 Given the two replicates in an experiment where Factor A has 2 levels and Factor B has 3 levels

Factor A	Factor B	Rep. 1	Rep. 2
1	1	19	25
1	2	5	7
1	3	4	12
2	1	5	3
2	2	17	15
2	3	6	14

- (a) Find the sums of squares residual or error.
 (b) Plot the relevant means as an interaction plot.
 (c) Conduct the F-test for the presence of interaction using $\alpha = .05$.
- 2 Three replicates of a 2^3 experiment were performed where the three factors are labeled A B and C.

A	B	C	Rep. 1	Rep. 2	Rep 3
-1	-1	-1	3	5	4
1	-1	-1	6	4	2
-1	1	-1	11	9	10
1	1	-1	12	15	15
-1	-1	1	10	10	13
1	-1	1	13	11	12
-1	1	1	16	18	17
1	1	1	20	24	22

- (a) Find the estimate of σ^2 , the variance of a single observation.
 (b) Plot the relevant means on a cube.
 (c) Estimate the effects. Use ± 2 standard errors to decide which effects are non-zero.
 (d) Summarize your findings.
- 3 Refer to Problem 2. Explain 3 different ways to calculate the main effect of Factor A in the previous problem. (you don't need to carry out the calculations).
- 4 Refer to Problem 2. Use Yates algorithm to find the estimated effects.