Agronomy 526 Homework

Due: 2/17/22

1. The data below are from an experiment designed to evaluate the effects of seeding rate and date on corn yield (bu/acre). The design was a CRD with three replications.

			Rep		
Treatment	**Date**	**Rate**	1	2	3
1	1	1	128.4	114.9	117.2
2	1	2	148.7	138.0	145.2
3	2	1	173.0	178.0	183.6
4	2	2	214.2	210.1	217.7
5	3	1	166.3	154.8	158.5
6	3	2	209.8	205.9	208.0

a. Perform the analysis of variance to determine if there was a significant effect due to treatments.

b. Use linear contrasts to test the hypothesis that means of the three treatment **dates** are equal.

c. Use a linear contrast to test the hypothesis that means of the two treatment **rates** are equal.

d. Assuming that the effects of **date** and **rate** are additive and do not interact with each other, the sums of squares for the above contrasts should sum to the treatment sums of squares. Perform this calculation and interpret the results.

e. Calculate two-way treatment means for **date** and **rate**.

f. Plot the means from e above using a line graph with date on the x axis. Explain the graph with respect to your interpretation from d above.