# Agronomy 526 Homework

**Due: 2/1/22**

1. Explain the concepts of comparisonwise and experimentwise error rate. Which is more useful for making pairwise comparisons and why?

2. The data in the table below are from a wheat variety trial. Assume 'Newton' is the check (control) variety. Use $\alpha = .05$ for all tests of significance.

**Replication**

| Variety | 1 | 2 | 3 |
|---|---|---|---|
| Payne | 51.8 | 54.9 | 59.7 |
| Bennet | 32.3 | 44.0 | 41.4 |
| Brule | 46.7 | 44.5 | 48.3 |
| Newton | 20.5 | 19.7 | 23.7 |
| Century | 34.7 | 39.2 | 37.4 |

   a. Calculate the analysis of variance for the experiment.

   b. Calculate the variety means.

   c. Compare variety means using the LSD test.

   d. Compare variety means using Duncan's multiple range test.

   e. Compare variety means using Tukey's HSD test.

   *** You may use SAS to calculate the analysis of variance and means, but all other calculations should be made by hand using formulas and tables from the reading.