Worksheet 10: Statistics IV

1. What assumptions are made when doing ANOVA?

2. Four analysts carry out replicate sets of determinations of mercury concentrations on the same analytical sample. The results in ppb Hg are shown in the table below.

Determination	Analyst 1	Analyst 2	Analyst 3	Analyst 4
1	10.24	10.14	10.19	10.19
2	10.26	10.12	10.11	10.15
3	10.29	10.04	10.15	10.16
4	10.23	10.07	10.12	10.10

   (a) State the appropriate hypotheses.

   (b) Do the analysts differ at the 95% confidence level? At the 99% confidence level? ($F_{\text{crit}} = 5.95$) At the 99.9% confidence level? ($F_{\text{crit}} = 10.80$)

   (c) Which analysts differ from each other at the 95% confidence level?

3. In what situations would you choose ANOVA over a t-test? In what situations would you choose a t-test over ANOVA?