

**Biology 3B Laboratory**  
**Hypothesis and stats assignment**

Name: \_\_\_\_\_

1. Dean and Tom noticed that wild ducks at the near by pond had different number of ducklings than those that they saw at the duck farm. They decided to study clutch size (number of eggs) in wild versus captive breed ducks. Next spring they collected the following data on clutch size for ducks:

Captive: 10 11 12 11 10 11 11  
Wild: 8 9 11 12 10 13 11 10 12

- What is the hypothesis they are testing?
  - What analysis would they run? Is this a one or two tailed test?
  - Run the analysis. Report the p-value and does the data support the hypothesis?
  - Construct a graph for the above data.
2. Twenty pigs are assigned at random among four experimental groups. Each group is fed a different diet. The data are pig body mass, in kilograms, after being raised on these diets. The question is: are pig masses the same for all four diets?

Feed 1	Feed 2	Feed 3	Feed 4
60.8	68.7	102.6	87.9
57	67.7	102.1	84.2
65	74	100.2	93.1
58.6	66.3	96.5	85.7
61.7	69.8	99.5	90.3

- What is the null hypothesis ( $H_0$ )?
  - Give an alternative hypothesis.
  - What analysis would they run?
  - Run the analysis. Attach your analysis.
  - Is there a difference between the feeds? If so, between which group(s)?
  - Construct a graph for the above data.
3. A rare plant, the flabby-leafed crocus (Ribbit flabbyblade) grows only in two remote Central American locations, Costa Lochsa Valley in Guatemala and the Rio Tia Savannah in Belize. The species grows adjacent to large boulders. A study of plant location was undertaken to determine if directional preference (side of boulder on which plant is growing) differed between the two locations. The following data were gathered in 1992:

	North	South	East	West
Costa Lochsa	138	92	118	93
Rio Tia Grande	119	107	112	99

- What is your null hypothesis?
- What is your alternative hypothesis?
- What statistical analysis would you use?