

## ***Biol. 254 Project #2 –TESTING FOR DIFFERENCES***

Name \_\_\_\_\_ Section \_\_\_\_\_

A. The first part of this assignment (20 pts) is to select a basic science primary literature paper that contains a test for differences between the means or variances of one continuous or discrete variable among two or more groups of plants. The type of plant must be one of the following: broadleaf tree, needle leaf tree, woody shrub, broadleaf herb, grass. Read the article, chose one test for differences, and answer the questions below. The null hypothesis and the test statistic may not be explicitly stated. There are many statistical tests used in the literature that you do not know. If you do not understand the analysis you found and cannot find the items below, chances are that the test is not one with which you are familiar. Enter the data for your paper on the “Reserve Paper” list. Papers are reserved on a first-come, first-serve basis.

1. From your paper, select a dependent variable for which there is a test of differences between groups. On the back of this page, (1) identify the overall goal of the research, and (2) explain why the test was important to the overall goal. (2 pts)

-Fill in blank with the type of plant that was studied in your paper \_\_\_\_\_

2. Fill in blanks:

a. variable names (1 pt) \_\_\_\_\_

b. measurement scales (1 pt) \_\_\_\_\_

c. variable types (1 pt) \_\_\_\_\_

d. measurement units (if applicable, 1 pt) \_\_\_\_\_

4. State null hypothesis (4 pts) \_\_\_\_\_

5. Identify and state value (if available) of test statistic (2 pts) \_\_\_\_\_

6. State probability (2 pts) \_\_\_\_\_

7. Was  $H_0$  rejected? (2 pts) \_\_\_\_\_

8. State conclusion of test (2 pts) \_\_\_\_\_

9. Support your answers with a PDF of the Title page and the pages of Results section that contain the results of the test of differences you reported. Do not attach the entire article. On the copy, highlight or underline your answers to questions A2a, A2d, and A5-6, but do not mark anything else. (2 pts)

B. The second part of this assignment (20 pts) is to pose a hypothesis on differences among the means or variances of one continuous or discrete variable between two or more groups of plants of the same type as in your paper, collect appropriate data, and test the hypothesis. Minimum sample size for each group is 15. You must design your project and analyze your data without assistance from others; however, you may enlist help from others to physically help you collect data (do not collect data via a questionnaire). Enter your variables on the "Reserve Paper" list. Variables are reserved on a first-come, first-serve basis.

-Fill in blank with the type of plant you measured \_\_\_\_\_

1. Describe how you measured each variable. (1 pt)

2. Fill out protocol sheet (18 pts)

3. Staple your materials together in this order: (1) project pages; (2) primary literature paper; (3) protocol sheet; (4) computer output and; (5) SYSTAT data file. Place in homework box in S161. (1 pt)

**LATE ASSIGNMENTS WILL NOT BE ACCEPTED**