## **1. T-test: 2 Independent Samples Assuming Unequal Variances**

From the **Class Survey Data File**, using the data from the **Female, Male Data sheet** --

A. If your section has < 100 students: Test Major Fits Me for females versus males

-- OR --

B. If your section > 100 students: Test Goals W/in Reach for females versus males

1) *Click* on the **DATA TAB** and then *select* **DATA ANAYLSIS**

2) *Select* t-test: 2 Samples Assuming Unequal Variances

3)Inputs:

● Variable 1 Range: 1st Column of Data, including heading
● Variable 2 Range: 2d Column of Data, including heading

● Hypothesized Mean Difference: 0
● *click on* Labels

● Alpha : see “\*” below

● Output Range: *click on* New Worksheet ply

**\*Alpha:** If your class size is < 100 → Alpha = .05, and if your class size is > 100 → Alpha = .01

## **2. T-Test: 2 Dependent Samples (Paired)Test**

All Sections: From the **Class Survey Data File**, Copy & Paste the Last Semester Rating and This Semester Rating data\*\* (Columns Q & U) to a new sheet –

1) *Click* on the **DATA TAB** and then *select* **DATA ANAYLSIS**

2) Select: t-Test: Paired Two Sample for Means

3)Inputs:Same as for above Test

**\*\***Semester Rating statements from the survey: Scale: 1 = Strongly Disagree, 7 Strongly Agree

Column Q: I did well in school last semester.
Column U: I expect to do well in school this semester.

## **C-10\_2 Samples\_Assignment Submission Form**

● If needed to answer the questions there is a helpful hint on page 2 below.

• Responses should be concise and clear.

• Putting your name on the Assignment Submission form signifies your agreement that the work

 and words is solely and wholly your work and words.

• Before **Coping & Pasting** the two output tables to the Submission Form set decimals to 4 places,

 format column widths, and make any and all needed adjustments so the tables are clear and

 clean, specifically titled, and understandable.

• You may need to **PASTE SPECIAL PICTURE** or **PASTE SPECIAL BITMAP** so copied images paste

 cleanly and clearly into the space provided.

• Do not submit any raw data.

• You are limited to 1 page (including the tables).

● IMPORTANT: Submission Forms must be kept as a Word document (.doc or .docx) or PDF

 (.pdf) or if needed try as an image (jpeg, jpg, or png). Other formats do not open on my end.

**HT Step 1: Setting up H0 and H1** (You are not asked to state H0 and H1 but it will help you answer the questions.)

For both examples there are no facts given, because you, as a class, are the facts – you are analyzing the survey data you created. Knowing that, combined with knowing the 4 facets of the null can help you set up H0 and H1.

4 Facets of the Null
1\ the null is the status quo

2\ everything arises from chance

3\ there are no differences between groups

4\ everything is unrelated

For the 2 INDEPENDENT test example when comparing females to males either 3 or 4 applies.

3 – no differences between males or females

4 – gender is unrelated to the other variable being tested

For the Matched Paired\Paired Difference (Dependent) example, the same group is measured twice so we’d expect no differences between the two measurements under the null.

For BOTH examples there is nothing in the facts (again you are the facts) to indicate direction, that we’d expect one group or one measurement to be higher/lower than the other group or the other measurement.

**HT Step 6 (also known as Question 2 on the submission form)** –

Recognize the fact that in the first example the data is divided up by gender and for the second example, the data is divide up by time (survey question asked about last semester after it happened and about this semester just as this semester started).

Then, for both examples, whether you reject or fail to reject the issue becomes what is some plausible reason or explanation or interpretation for the outcome the test produced. Are you surprised/not surprised by the test result? If so/if not, why?

**Note**: *If you reject on a 2-tail test, compare the means. That will tell you which group is significantly higher/lower.* Recall, from the previous assignment, the Mermaid example was a 2-tail test, that for most ended up rejecting. Then looking at the means we could tell Franchica’s mean O-rating was significantly lower, and so the question became what might explain Franchica’s lower score or what course of action might Franchica or Corporate take.