# LAB_07:  Thursday, October 24
# Hypothesized Results and Practice Analysis

(Refer to the Lab Guide – Research Manual: Lab #7 and to the Lab Guide – LAB Assignment Examples)

You will be completing this assignment on the PAPER copy provided to you in class.  You will hand in your PAPER copy at the end of class.  You will receive back a scanned version of your assignment along with feedback.

This document is SOLELY for your own records and information.

You will, however, be entering your "hypothetical" data using your spreadsheet from LAB_06 revised as per feedback from your professor or graduate co-instructor.  You won't be submitting that data; but keep it for your records.

See the following pages for the LAB_07 document you will be completing on paper in class.

## LAB_07:  Thursday, October 24
## Hypothesized Results and Practice Analysis

**Purpose:**
The purpose of today's assignment is for your team to hypothesize how your research is expected to turn out, to generate hypothetical data, and to analyze and interpret those data.

**Procedure:**
This is a team assignment and all team members are expected to help each other with each step of the process.  However, each team member will also have a specific, lead role in this assignment:
- Person 1: Hypothesize the outcome of your study.
- Person 2: Generate hypothetical data (n = 10) and enter it into your spreadsheet from your LAB_06 assignment.
- Person 3: Generate hypothetical data (n = 10)  and enter it into your spreadsheet from your LAB_06 assignment.
- Person 4: Data analysis.
- Person 5: Reporting of results and interpretation.

**General Guidelines:**
Please discuss and agree upon roles as a group before continuing.

**At the end of class:**
- Hand in your team's completed copy of the LAB_07 assignment to your professor or graduate co-instructor at the end of class.

**After class:**
- Your professor or graduate co-instructor will scan your assignment and email each member of your team a .pdf copy of the assignment, along with feedback, before the next class.

TEAM #: _____

Members Present:

Members Not Present:

**Step 1: Hypothesized Outcome**:

Team Member Name leading this step: _____

The team member with the lead role in this step will, in consultation with your team, complete the following information regarding your project:

If your study is a 1 IV, 2-Level design, in the space below, draw a bar (column) graph depicting the results as you predict they will appear in your research study.

If your study is a 2 x 2 design, in the space below, draw a line graph depicting the results as you predict they will appear in your research study, such that any expected main effects and/or interactions are represented.

**In 1-2 sentences, provide a written description of your hypothesized results.**
*(Example: It was hypothesized that participants would provide higher ratings of the desirability of a fictitious target person's life when that life was described as shorter, but uniformly very happy, than when that life was described as five years longer, with the last five years only mildly happy.)*

## Steps 2-3: Hypothetical Data.

Team Member #1 Name leading this step:  _____

Team Member #2 Name leading this step:  _____

The team members with the lead roles in these steps will, in consultation with your group, provide hypothetical data to populate your spreadsheet.  Use your spreadsheet from your LAB_06 assignment.

1. Open the spreadsheet and your team study materials for reference.

2. The first team member with lead responsibility will generate and enter the first ten rows of hypothetical data and the second team member will generate and enter the next ten rows of hypothetical data, for a total of 20 rows of data.

    a. If your study is a 1 IV, 2-Level design, you might divide up this step so that the first team member generates hypothetical data for the first condition/level and the second team member generates hypothetical data for the second condition/level, such that you will have 10 rows of data for your first condition/level and 10 for your second.

    b. If your study is a 2 x 2 design, you might divide up this step so that the first team member generates hypothetical data for the first and second conditions/levels (2 of the "boxes" in your 2 x 2 matrix), with 5 rows of data per condition/level; and the second team member generates hypothetical data for the third and fourth conditions/levels (the other 2 of the "boxes" in your 2 x 2 matrix), with 5 rows of data per condition/level.

3. Save your hypothetical data as a NEW file.  This is for your records only.

## Step 4: Data Analysis.

Team Member Name leading this step:  _____

The team member with the lead role in these steps will, in consultation with your team, analyze the hypothetical data using your spreadsheet.

For 2 Level designs:  The spreadsheets are coded with formulas so that following statistics should automatically calculate.  This team member must ensure that the sheet is updating automatically and note where the statistics are on the spreadsheet.  (Cells with results in them on each spreadsheet are highlighted in bright blue – but there a lot of numbers on each sheet.  So be careful!
- means
- standard deviations
- a $t$-test statistic
   - this includes the degrees of freedom
   - this includes the $p$ value
- effect size
   - $d$  or eta squared

For 2x2 designs:  To calculate your statistics, you will need to go to the link below – as appropriate for your design:

2x2 Between Within:  http://vassarstats.net/anova2corr.html

2x2 Between:  http://vassarstats.net/anova2u.html

2x2 Within:  http://vassarstats.net/anova2o2corr.html

You will then copy+paste the data from your spreadsheet into the online stats foms.

## Step 5: Reporting of Results & Interpretation. (2-Level Design)

The team member with the lead role in this steps will, in consultation with your team, provide a complete reporting of the hypothesized results as per the in-class examples for the Class Experiments 1 and 2.  Complete EITHER the 2-Level Design sheets  OR  the 2x2 Design sheets.

Team Member Name leading this step:  _____

2-Level Design

*Descriptive Statistics*

Condition 1 ( _____) write-in description

*M* = _____     *SD* = _____


Condition 2 ( _____) write-in description

*M* = _____     *SD* = _____


*Inferential Statistics*

*t* (_____) = _____,   *p* = _____
     df         *t* statistic

*Graph*

*Description of Results*

## Step 5: Reporting of Results & Interpretation. (2x2 Design)

The team member with the lead role in this steps will, in consultation with your team, provide a complete reporting of the hypothesized results as per the in-class examples for the Class Experiments 1 and 2.  Complete EITHER the 2-Level Design sheet  OR  the 2x2 Design sheets.

Team Member Name leading this step:  _____

2x2 Design

*Descriptive Statistics – Main Effects*

Factor 1:  _____

Level/Condition 1     Level/Condition 2

_____               _____

| | Level/Condition 1 | Level/Condition 2 | |
|---|---|---|---|
| Level/Condition 1 | | | |
| Level/Condition 2 | | | _____ |

Factor 2

_____

_____

_____               _____

*Inferential Statistics*

1. Is there a main effect of factor 1 (are means ≠)?  Yes  /  No
   a. Now, consult your inferential stats for the following:
      i. $F$ (   ,   )  =  _____ , $p$ = _____
             df      $F$ statistic

      ii. Does there appear to be a main effect of factor 1?  (are means ≠)?
          Yes  /  No

      iii. What is the size of the difference in the marginal means?

 

Is there a main effect of factor 2 (are means  ≠)?  Yes  /  No
   b. Now, consult your inferential stats for the following:
      i. $F$ (   ,   )  =  _____ , $p$ = _____
             df      $F$ statistic

      ii. Does there appear to be a main effect of factor 2?  (are means ≠)?
          Yes  /  No

      iii. What is the size of the difference in the marginal means?

*Interaction*

Draw a line graph in the space below to evaluate the interaction.

Does there appear to be an interaction between the factors (Are lines non-parellel)?

Yes  /  No

*Description of Results*

[Hint: **(1)** state what statistic you are performing and why, **(2)** describe the differences in means (descriptive stats) for the main effect of the **first factor/IV**, **(3)** describe the differences in means (descriptive stats) for the main effect of the **second factor/IV**, **(4)** describe the **interaction**. ]