Introduction to Statistics for the Social Sciences
SBS200, COMM200, GEOG200, PA200, POL200, or SOC200
Labs Sessions, Spring 2015 - Room 480 Marshall Building
February 2 – 6th

Agenda Lab 2 - The purpose of this lab is to
• review the requirements of Project 1
• organize into groups of 2 or 3
• design the methodology and data collection protocol
• design the assessment instrument (questionnaire)
• organize the duties of the group members
• predict the results of the study

Your survey can be on any topic you are curious about – politics, sports, popular culture, religious/spiritual beliefs, attitudes toward drugs, video games, attitudes toward diet and health, food preferences, etc.
[Note: Due to subject protection concerns/ethics we will need to keep it PG-rated and not implicate anyone in any illegal activities.]

For this assignment, you will work in groups of 2 or 3 to:
• develop a research question of interest and a series of associated hypotheses (predictions)
• develop and administer a survey (10 people for each group member)
• enter and analyze the data from it in Excel
• summarize and present the results of the project in PowerPoint presentation

Requirements for Project 1:

• The entire survey should be about one single, coherent topic.

• The survey should fit on one side of one piece of paper.

• The survey must include a Likert scale (mini-quiz) that can be summed into a single composite score and will be used as your primary dependent variable for your analyses.
  o The items on the Likert scale should be carefully constructed to measure a single construct
  o The Likert scale should contain at least 3 questions
    You could create a knowledge-based quiz (like our trivia questionnaire) or you could create an attitude-based quiz. Examples of an attitude composite score might include a measure of attitude toward “dental hygiene”, or “how serious a gamer someone is” or “animal rights”. Knowledge-based quiz might include “how well you speak Spanish” or “knowledge about popular culture” or “trivia” just like we did in lab. Whether you do a factual or attitude mini-quiz, you should have at least 3 items on it.

• Hypothesis 1: Must predict a positive correlation and must compare two quantitative variables
  o For example, you might measure height and weight and predict that these will be positively correlated.
  o So question 1 might ask about height and question 2 might ask about weight

• Hypothesis 2: Must predict a negative correlation and also must compare quantitative variables
  o For example, how often people brush their teeth and the number of cavities and predict a negative correlation.
  o So question 3 might ask about how often people brush their teeth and question 4 might ask about the number of cavities

• Hypothesis 3 (comparing means) will require one categorical variable (independent variable) and one quantitative variable.
  o For example, you might ask their gender (question 5) and their attitudes toward dental hygiene (questions 6-9 combined into a single composite score).
  o So questions 6, 7, 8, and 9 might all be different questions that measure how important good dental hygiene is for that person. You then can compare two means: the mean dental hygiene score (composite score) for women versus men.
Sample project:

**Slide 1: Title page**

Relationship between computer use and physical exercise in college students.

**Slide 2: Theme of project**

We explored the relationship between computer use and exercise. We measured the nature of computer use and exercise reported by college students. We measured how much time students spent on the computer (Facebook, gaming, surfing the internet) and how much time students spent exercising.

**Slide 3: State your three hypotheses clearly and the predictions for each**

**Hypothesis 1:** Our first analysis will describe the correlation between how serious a “gamer” students are and how much time they spend on Facebook. We predicted this to be a positive correlation.

**Hypothesis 2:** Our second analysis will describe the correlation between how serious a “gamer” students are and how much time they spend on studying. We predicted this to be a negative correlation.

**Hypothesis 3:** Our third analysis will compare the means for how serious a “gamer” students are for male versus female students. We predicted the male students to score higher on our “serious gamer” construct.

**Slide 4: Describe the construct you intended to measure by your composite score**

The construct measured by our composite score was “How serious a gamer are you?” This construct was measured by a series of Likert scale questions.

**Slide 5: Results Hypothesis 1**

**Hypothesis 1:** Our first analysis describes the correlation between how serious a “gamer” students are and how much time they spend on Facebook. We found this to be a strong positive correlation ($r = +0.85$)

**Slide 6: Scatterplot 1 – Positive correlation**

Properly labeled scatterplot would go here

**Slide 7: Results Hypothesis 2**

**Hypothesis 2:** Our second analysis describes the correlation between how serious a “gamer” students are and how much time they spend on studying. We predicted a negative correlation but were surprised that we found this to be a weak positive correlation ($r = -0.15$)

**Slide 8: Scatterplot 2 – Negative correlation**

Properly labeled scatterplot would go here

**Slide 9: Hypothesis 3 – comparing means**

**Hypothesis 3:** Our third analysis will compare the means for how serious a “gamer” students are for male versus female students. We predicted the male students to score higher on our “serious gamer” construct. However we were surprised to find that they were actually pretty similar.

**Slide 10: Bar graph**

Properly labeled bar graph would go here

**Slide 11: Summary**

Summary of the three hypotheses and results will go here
Worksheet for Project 1 - By the end of today's lab you will have filled out this sheet and:

- Designed a study (that meets requirements)
- Written the questionnaire
- Designed the specific instructions for respondents – (called a protocol so all members gather data in same way)
- Receive approval for project by your TA

The general topic of our questionnaire will look at ______________________________________________________________________________

Our Hypothesis 1 is: Identify two quantitative variables that you predict will produce a POSITIVE correlation. For example, you might measure height and weight and predict that these will be positively correlated. Our positive correlation will be between __________________________________________ and __________________________________________

And the data will be gathered using these two questions

Please note: if one of these variables will be made up of your composite questions, list the series of questions on the back of this page.

- Question 1:
  Level of measurement for this variable is interval – ratio (circle one – it has to be quantitative)

- Question 2:
  Level of measurement for this variable is interval – ratio (circle one – it has to be quantitative)

Our Hypothesis 2 is: Identify two quantitative variables that you predict will produce a NEGATIVE correlation. For example, how often people brush their teeth and the number of cavities and predict a negative correlation. Our negative correlation will be between __________________________________________ and __________________________________________

And the data will be gathered using these two questions

Please note: if one of these variables will be made up of your composite questions, list the series of questions on the back of this page.

- Question 3:
  Level of measurement for this variable is interval – ratio (circle one – it has to be quantitative)

- Question 4:
  Level of measurement for this variable is interval – ratio (circle one – it has to be quantitative)

Our Hypothesis 3 is: Identify an independent variable (categorical variable) and a dependent variable (quantitative variable) and so that you can compare the means of the different groups. For example, ask their gender and attitude toward dental hygiene (composite score), then compare the attitude between men vs women. Our comparison of means will measure:

- Dependent variable:
  Level of measurement for this variable is interval – ratio (circle one – it has to be quantitative)

- Independent variable:
  Level of measurement is nominal – ordinal (circle one – must be categorical data)

Levels of the independent variable: __________________________________________

And the data will be gathered using these two questions

Please note: if one of these variables will be made up of your composite questions, list the series of questions on the back of this page.

- Question 5:
- Question 6:

Please take a minute to describe your project to your TA before moving on
Our questionnaire will be made up of these questions
(please note with an asterisk * which questions will be used as part of your composite score)

Question 1.

Question 2.

Question 3.

Question 4.

Question 5.

Question 6.

Question 7.

Question 8.

Question 9.

Question 10.

The construct for our summated questionnaire is: ___________________
Questions that will measure this construct are: ______________________
Remember to construct your excel database and show your TA for approval