Phil 12
Fall 2012

First Writing Assignment

Write a short paper (1-2 pages, double-spaced, typed) on the question assigned for your section. These are to be turned in by Noon on Friday, November 16. Papers should be submitted electronically to your TA in .doc or .rtf format. If this is not possible, you may deliver them to your TA's mailbox by Noon. The goal of this paper is to explain clearly the central concepts employed in the question you are to address. Assume that your audience is a fellow student not in this class. To explain the material to that person you cannot just use the concepts we have developed in class but must *explain* them. Present your answers totally in your own words—do not quote material either from the website, the lecture powerpoints, or anyone else.

A01 and A02: Write a tutorial guide to testing a correlational hypothesis. **First**, define and explain the following terms: research hypothesis, null hypothesis, statistical significance, and type I and type II errors. **Second**, apply these concepts to an example of testing differences between sample means. (The example can be made up. The following is the type of example you should consider: A research team is planning to investigate a sample of Southern-Californians to determine whether right-handed people live longer than left-handed people. You will not be judged on the creativity of the example. Rather, it is important that your example be sufficiently straightforward so that you can clearly illustrate these concepts.) **Be sure to address the following questions**: What constitutes the research hypothesis? The null hypothesis? What is the importance of the null hypothesis? What does it mean to reject the null hypothesis? What constitutes an appropriate level of statistical significance? What should one conclude if the results are found to be statistically significant at a given level? What should one conclude if they are not? What are potential type I and type II errors? What is their significance? What are the strategies for reducing each kind of error?

A03: Suppose a research team has published a study in which they found that how quickly a person replies to an email is correlated with her performance at work. The Pearson coefficient is .99. They have achieved statistical significance ($p<.001$). You are now working in the human resources department of a company. Your company is going to hire one person, and there are two applicants. Person A replies to your emails within 6 hours on average, while Person B usually responds 2 days after you sent emails. Your job is to write a report explaining to your boss why, given the study above, you think Person A or Person B should be hired. Note that your boss has never heard of a Pearson coefficient or a p-value. Make clear what the Pearson coefficient p-value mean. You may assume that the operational definitions the researchers used have excellent construct validity. Do not repeat this scenario in the paper, just get started on convincing your boss.

A04: Suppose you think that the climate of a country is correlated with the research output of the country: a country with a better climate is less productive of research, since people would like to do something other than their research on fine days. You decide to find out whether there really exists a correlation between the climate and the research productivity of a country. In order to begin your investigation, you will have to come up with operational definitions for your variables. First, explain why this is necessary. Then, provide **TWO** operational definitions for **EACH** variable (goodness of the climate, research productivity), stating a strength and weakness of each one. Discuss each of these in terms of construct validity. Keep in mind that both variables must be score variables, so you need operational definitions that allow you to render them numerically.