

**DSCI-549: Introduction to
Computational Thinking and
Data Science**

**USC Viterbi School
of Engineering**

Homework 6

Communications

Please contact TA **Tae Woo Kang** (taewooka@usc.edu) for this homework and include “DSCI549” in the subject line of your email.

Assignment

The purpose of this homework is to practice, for any given research question, how to analyze data and draw conclusions based on the chosen methodology. Complete this assignment in a word document, with sections that correspond to the 5 items below. Then submit it on D2L.

First, for the following hypotheses, first determine if you can use the experimental method or not, and explain your choice. Then, identify the Independent and Dependent Variables (IV and DV). Next, operationalize each variable – how would you operationalize it if you were going to run a study? Finally, tell me what statistical test you will use and why!

1. Hypothesis: Females (gender assigned at birth) are more talkative than males

Can you use the experimental method or not?

If yes, why? If not, why not (is it not practical, ethical, or neither?)

What are your IV and DVs?

Whether experimental or correlational, what are your operational definitions for those variables?

What statistical test do you conduct and why?

2. Hypothesis: People learn more when they study in a quiet versus noisy place

Can you use the experimental method or not?

If yes, why? If not, why not (is it not practical, ethical, or neither?)

What are your IV and DVs?

Whether experimental or correlational, what are your operational definitions for those variables?

What statistical test do you conduct and why?

3. Hypothesis: Exercising moderately for 30 minutes in a given day helps you sleep better that night

Can you use the experimental method or not?

If yes, why? If not, why not (is it not practical, ethical, or neither?)

What are your IV and DVs?

Whether experimental or correlational, what are your operational definitions for those variables?

What statistical test do you conduct and why?

4. Hypothesis: People who believe they will die soon are less likely to delay gratification (i.e., less likely to forgo immediate rewards for larger future gains).

Can you use the experimental method or not?

If yes, why? If not, why not (is it not practical, ethical, or neither?)

What are your IV and DVs?

Whether experimental or correlational, what are your operational definitions for those variables?

What statistical test do you conduct and why?

5. Hypothesis: Sex before marriage improves the marriage

Can you use the experimental method or not?

If yes, why? If not, why not (is it not practical, ethical, or neither?)

What are your IV and DVs?

Whether experimental or correlational, what are your operational definitions for those variables?

What statistical test do you conduct and why?

IMPORTANT NOTES

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in the Student Handbook <https://policy.usc.edu/studenthandbook/>. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, <https://policy.usc.edu/research-and-scholarship-misconduct/>.

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the American Language Institute <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students.

For more information, see the class syllabus and the USC web site.