HED 612

Problem Set #9

**OLS Assumption 1 Questions**

1. Define OLS assumption 1 in words and state the assumption mathematically.
2. Under what two conditions would a variable that is omitted from your regression model result in a violation of assumption 1? Is the assumption violated if only one of the two conditions is present or must both conditions be present for the assumption to be violated?

**Program Evaluation Questions**

1. Create a causal inference research question of your own choosing. The research question must take the form “What is the effect of X on Y” where X is a variable that could (in theory) be randomly assigned.
2. Write out the population linear regression model associated with this research question.
3. Identify three variables that would result in a violation of OLS assumption 1. For each variable write once sentence why that variable might affect Y and write one sentence about why that variable might have a relationship (e.g., correlation) with X.