

NAME _____

STUDENT NUMBER _____

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STA442/1008 2012

Quiz 1

1. (5 Points) Make up an original example of an observational study with one quantitative independent variable and one categorical dependent variable. Clearly indicate

- What the cases are
- Which variable is independent
- Which variable is dependent

You have a lot more room than you need for a good answer.

(For example: In a study of automotive reliability, the cases were a sample of automobiles. The quantitative independent variable was age of car, and the categorical dependent variable was whether or not the car had a major repair during the last 12 months.)

2. (5 Points) Label each statement below True or False. Write “T” or “F” beside each statement. You must get at least 6 out of 8 correct in order to get credit for this question.

- (a) (F) In an observational study, a statistically significant relationship between the independent variable and the dependent variable can provide some evidence of a causal relationship if the study is well controlled.
- (b) (F) The p -value is the probability that the null hypothesis is true.
- (c) (T) We observe $r = -0.70$, $p = .009$. We conclude that high values of X tend to go with low values of Y and low values of X tend to go with high values of Y .
- (d) (F) If $p < .05$ we say the results are statistically significant at the .05 level, and we do not have sufficient evidence to conclude that the independent variable and the dependent variable are related in the population.
- (e) (F) The p -value is the probability of failing to replicate significant results in a second independent random sample of the same size.
- (f) (F) The greater the p -value, the stronger the evidence that the independent and dependent variable are related.
- (g) (T) An experimental study is one in which cases are randomly assigned to the different values of an independent variable.
- (h) (F) When a relationship between the independent variable and the dependent variable is *not* statistically significant, we conclude there is no relationship between the two variables in the population.