# Long Island University Post

# College of Management

## **MDA 525-1 Business Analytics Summer 2019**

## **Instructor: Dr. Jiamin Wang**

# Quiz 1 Due July 31

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| **Student's Name** |  |

Section I. True/False Questions (6 points)

For each of the following statements write "T" if you think it is right or "F" otherwise.

1. 60% of the 300 households surveyed had an average yearly income of at least $70,000. The sample size was 180 (=300×60%). ( )

2. GPA is an example of ordinal data.  ( )

3. A complete census is the only way to establish a cause-and-effect relationship. ( )

Refer to the following study. Answer questions 4 to 6.

A company specializes in printing various types of labels. Since new printing orders require allocation of considerably more resources (such as for equipment set-up) than repeat orders, the management was interested in determining the proportion of new orders among all printing orders processed by the company. A recent study collected data for the last 50 orders processed and found out 20% of the orders were new.

4. The population consists of the last 50 orders processed by the company.   ( )

5. The value 20% is a population parameter. ( )

6. Since all the orders in the sample were examined, the study was a census. ( )

Section II. Multiple-choice Questions (6 points)

1. Any characteristic of a population is a (an) \_\_\_\_\_\_\_. ( )

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| A | observation |
| B | sample |
| C | variable |
| D | parameter |

2. Which of the following is most likely a population parameter as opposed to a sample statistic? ( )

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| A | The lowest score of the first ten students completing an assignment. |
| B | The average tax refund amount of the tax returns filed before April 10. |
| C | The average height of 50 people randomly selected from a database. |
| D | The proportion of trucks stopped yesterday that were cited for bad brakes. |

3. In one study subjects were randomly given either 500 or 1000 milligrams of vitamin C daily, and the number of colds they came down with during a winter season was noted. ( )

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| A | This study was observational. |
| B | This study was an experiment with a treat group and a control group. |
| C | This study was an experiment without a control group. |
| D | None of the above is a correct statement. |

4. 100 volunteers were randomly split into two groups. One group was fed oatmeal with fruit, while the other was fed Western omelets with home fries. If the second group gave a substantially higher average score, what is a reasonable conclusion? ( )

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| A | There is no reasonable conclusion because the subjects were volunteers rather than being randomly selected from the general population. |
| B | There is no reasonable conclusion because of the small sample size. |
| C | In general, people find Western omelets with home fries more satisfying than oatmeal with fruit. |
| D | There is not reasonable conclusion because there are too many possible confounding variables such as age, race and ethical background of the individual volunteers. |

5. Which of the following variables are numerical? Select all that apply.

( )

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| A | GDP |
| B | Letter Grade (A, A-, B+, B, etc.) |
| C | Zip Code |
| D | Film Rating (G, PG, PG-13, etc.) |
| E | Rank (first, second, third, etc.) |

6. Which of the following studies are observational? Select all that apply. ( )

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| A | Counties in eastern Iowa that received either high or low rainfall in a given year are compared in terms of their corn yields. |
| B | In order to determine whether a new chemotherapy drug A has a greater effect than the current standard drug B, investigators randomly assigned patients to be treated by one or the other of the two drugs and compared the response rates. |
| C | Female and male students were surveyed separately to compare their approval rates of the university's non-discrimination policy. |
| D | Compare the rate of foreclosure among people who paid a higher down payment on their home and that among people who paid a lower down payment. |
| E | Two versions of a web page are shown to visitors at random to compare their performance. |