

Bio401_MID_TERM

Important Subjective

Solved BY

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1. What are outlier?

Unusual data values as compared to the rest of the set. They may be distinguished by gaps in a histogram.

2. Name of probability sampling design?

Simple random sampling Stratified sampling ✦
Systematic sampling ✦ Cluster (area)
sampling ✦ multistage sampling ✦

3. Difference between qualitative quantative variables?

Quantitative Variables It can be measured in the usual sense. For example: - the heights of adult males, - the weights of preschool children, - the ages of patients seen in a dental clinic. **Qualitative Variables** Many characteristics are not capable of being measured. Some of them can be ordered or ranked. For example: - classification of people into socioeconomic groups, -social classes based on income, education, etc

4. What are shapes of distribution?

Symmetric

- Data is symmetric if the left half of its histogram is roughly a mirror image of its right half.

Skewed

- Data is skewed if it is not symmetric and if it extends more to one side than the other.

Uniform

- Data is uniform if it is equally distributed (on a histogram, all the bars are the same height or approximately the same height).

5. What is data and what are difference source of data?

The raw material of Statistics is data. We may define data as figures. Figures result from the process of counting or from taking a measurement.

For example:

- When a hospital administrator counts the number of patients (counting). - When a nurse weighs a patient (measurement) Sources:

**Routinely kept records. External sources.
Surveys: Experiments**

6. What is frequency distribution and frequency histogram?

Frequency Distribution

- **A table that organizes data values into classes or intervals along with number of values that fall in each class (frequency, f).**

1. Ungrouped Frequency Distribution – for data sets with few different values. Each value is in its own class.

2. Grouped Frequency Distribution:

For data sets with many different values, which are grouped together in the classes.

Frequency Histogram

- **A bar graph that represents the frequency distribution.**

- The horizontal scale is quantitative and measures the data values.
- The vertical scale measures the frequencies of the classes.
- Consecutive bars must touch.

7. Write a comprehensive note on sampling and statistical inference. What are different types of sampling? What are the characteristics of each type of sampling?

Answer:

Sampling

A sample is a subset of individual from a larger population. Sampling means selecting the group that you will actually collect data from in your research.

For example, if you are researching the opinion of students in your university, you could survey a sample of 100 students.

Samples are used to make inference about populations. Samples are easier to collect data from because they are practical, cost-effective, convenient and manageable.

Statistical inference

Statistical is the process of using data analysis to deduce properties of an underlying distribution of probability. Inferential statistics analysis infers properties of a population, for example by testing hypotheses and driving estimates. It is assumed that the observed data set is sampled from a larger population.

Types of Sampling

There are two major types of sampling:

**Probability Sampling and
Non-probability sampling**

Probability Sampling

Probability Sampling means that every member of the target population has a known chance of being include in the sample.

Probability sampling method includes simple random sampling, systematic sampling, stratified sampling and cluster sampling.....

Random Sampling

Random sampling is analogous to putting everyone's name into a hat and drawing out several names. Each element in the population has an equal chance of occurring. While this is the preferred way of sampling, it is often difficult to do. It requires that a complete list of element in the population be obtained.

Systematic Sampling

Systematic sampling is easier to do than random sampling. In systematic sampling, the list of element is “counted off”. That is, every kith element is taken. This is similar to lining everyone up and numbering off “1, 2, 3, and 4; 1, 2, 3, 4; etc”. When done numbering, all people numbered 4 would be used.

Cluster Sampling

Cluster sampling is accomplished by dividing the population into groups_ usually geographically. These groups are called clusters or blocks. The clusters are randomly selected, and each element in the selected clusters is used.

Stratified Sampling

Stratified also divide the populations into groups called strata. However, this time it is by

some characteristic, not geographically. For instance, the population might be separated into males and females. A sample is taken from each of these strata using either random, systematic, or convenience.

NON-probability Sampling

Non probability sampling is a sampling technique where the odds of any member being selected for a sample cannot be calculated. Example of non-probability sampling is convenience sampling, accidental sampling etc.

Convenience Sampling

Convenience sampling is very easy to do, but it is probably the worst technique to use. In convenience sampling readily available data is used. That is the first people the surveyor runs into.

Main characteristics of Sampling

In sampling, we assumed that samples are drawn from the population and sample means and population means are equal. A population can be defined as a whole that include all item and characteristics of the research taken into study. We make inference about the population with the help of sample.

Difference Qualitative and Quantitative variable?

Variables can be classified as qualitative (aka, categorical) or quantitative (aka, numeric)

What is data how it can be collected? / What is data and are different sources of data? What is data enlist is sources?

A census is a study that obtains data from every member of a population. In most studies, a census is not practical, because of the cost and/or time required. Sample survey. A sample survey is a study that obtains data from a subset of a population, in order to estimate population attributes.

Write the different shapes of distribution? The shape of a distribution is described by its number of peaks and by its possession of symmetry, its tendency to skew, or its uniformity. (Distributions that are skewed have more points plotted on one side of the graph than on the other.)

Non probability?

Non probability sampling which involves the sample being drawn from that part of the

population which is close to hand. That is, readily available and convenient.

Frequency distribution and Histogram?

Frequency distribution:

A table that organizes data values into classes or intervals along with number of values that fall in each class (frequency, f).

1. Ungrouped Frequency Distribution – for data sets with few different values. Each value is in its own class.

2. Grouped Frequency Distribution: for data sets with many different values, which are grouped together in the classes.

Frequency Histogram:

- A bar graph that represents the frequency distribution.

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Three types of sampling?

The main types of probability sampling methods are simple random sampling, stratified sampling, cluster sampling, multistage sampling, and systematic random sampling.

The key benefit of probability sampling methods is that they guarantee that the sample chosen is representative of the population.

What are outlier? / What do you mean by outlier?

An outlier is an observation point that is distant from other observations.

An outlier may be due to variability in the measurement or it may indicate experimental error; the latter are sometimes excluded from the data set.

Name of probability sampling? Enlist type of probability sampling?

Simple Random Sampling. Simple random sampling is the easiest form of probability sampling. ... Stratified Random Sampling. Stratified random sampling is also known as proportional random sampling. ... Systematic Random Sampling. ... Cluster Random Sampling.

MCQs Verify MCQs before attempt

The population is measured by _____

Answer: Parameter

Types of sampling _____

Answer: All Above

Well distinct object is called? Answer: Set

**Quantitative variable contain? Answer:
Numbers**

The type of sampling are? Answer: 5

There are _____ types of probability?

Answer: 2

Source of data are _____? Answer: All of these

Mean is the _____ value? Answer: Average

Calculate the mean _____ (Data is given in question)? Answer:

The five number summary does not contain _____ Answer: X0