

Introductory Concepts

Assignment.

G&W, Chapter 1
Kachigan, Chapter 1

Terms you should know.

Statistics

Descriptive Statistics

Inferential Statistics

Population

Sample

Random Sample

Parameter

Statistic

Sampling Error

Variables

Discrete Variable

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Continuous Variable
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Dichotomous variable
.....
.....

Dummy variable
.....
.....

Numerical Scales

Nominal Scale
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Ordinal Scale
.....
.....

Interval Scale
.....
.....

Ratio Scale
.....
.....

Concepts You Should Master.

1. Identify each of the following as being either Random or Non-Random.
 - a. You want to determine the feelings of students toward smoking in class so you select every sixth person who registers late for classes to interview.
 - b. You want to determine level of religious opinion toward divorce so you choose all members of your church to complete a questionnaire.
 - c. You want to assess the reaction times of collegiate badminton players so you get a list of all NCAA badminton teams and select all players who were born on odd numbered days.
2. Identify the type of scale that was used in each of the following.
 - a. A professor assigned consecutive numbers to students as they walked into the class room. What kind of scale was used here?
 - b. A man went into a clothing store and asked for a 36 inch belt. What kind of scale was used here?
 - c. One day the old woman who lived in a shoe decided to give each of her children a random number so she could identify them. What kind of scale did she use?
3. Which of the following is a discrete variable and which is a continuous variable?
 - a. Your car's speed.
 - b. The number of people in a class.
 - c. The number of times a dog barks in a learning experiment.
 - d. Your score on an IQ test.

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4. Give an example of each of the following
 - a. Nominal scale
 - b. Ordinal scale
 - c. Interval scale
 - d. Ratio scale

5. We use the term *INFERENCE* in statistics.
 - a. What does this term mean?
 - b. From what are we inferring?
 - c. To what are we inferring?

6. When should we be concerned about SAMPLING ERROR? Why?

Statistical Notation and Computations

Assignment:

G&W, Chapter 1

Terms you should know.

Summation
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Formulas and Symbols You Should Know.

Σ
.....
.....

ΣX
.....
.....

ΣX^2
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.....

$(\Sigma X)^2$
.....
.....

$\frac{\Sigma(X - Y)}{N}$
.....
.....

$\Sigma(X - Y)^2$
.....
.....

Computations You Should be Able to Perform.

1. Complete the following table.

X	Y	X ²	Y ²	(X+Y)	(X - Y) ²
21	32				
33	12				
52	23				
66	42				
45	9				
79	6				
92	12				
74	32				
36	20				
53	18				

2. Using the data from this table what is the value of each of the following?

ΣX _____ ΣY _____ ΣX^2 _____ ΣY^2 _____

$\Sigma (X + Y)$ _____ $\Sigma (X - Y)^2$ _____

$\sqrt{\Sigma(X - Y)^2}$ _____

$\Sigma X^2 - (\Sigma X)^2$ _____

Concepts and Interpretation

1. Was the following was done correctly?

A student was asked to compute $\Sigma X/N$. To do this she added up all of the scores in the distribution and divided by the number of scores.

2. A professor computed $\Sigma(X - Y)^2$ and came up with a negative number for an answer. Why can this not be correct?

3. A student evaluated the following expression $\Sigma X - \Sigma X^2$ by computing the sum of all of the X scores, multiplying this sum by 2, and then subtracting the second sum from the sum of all of the X scores. Was this done correctly? If not, what mistake was made?