

1. Data & Notation

Give a Real Life Example of Each

Nominal

Ordinal

Interval

Ratio

Transform/Code the set below into quartiles. A form of ordinal data classification, quartiles creates 4 classes of equal size (1 quartile= $n/4$) from Highest to Lowest:

7 5 8 1 5 1 15 11 1 2 22 27 50
 42 7 12 1 99 102 3 7 11 5 22 1 45

Q1Range:_____ Q2Range:_____ Q3Range:_____ Q4Range_____

N=

Notation

	Va	Vb	Vc	Vd
N1	1	2	32	1
N2	1	1	1	32

Define and calculate (if necessary) based on above matrix:

"i" refers to

"j" refers to

$$\sum_{i=1}^2 \sum_{j=2}^3 X_{ij}$$

$$\sum_{i=4}^n X_{ij}, \text{ for } j=1$$

2. Central Tendency & Dispersion

Define and provide formula using notation (if appropriate)

Mean

Median

Mode

Deviation

Variance

Standard Deviation

C.V.

Range

Based on the set below, sketch the distribution using a histogram.

1 7 8 7 9 5 5 6 1 2 2 3 1 1

Find the mean, median, range, and mode of the above set.

3. Standardized Variables, Probability, & Normal Distribution

Calculate the Z-Scores for the set below ($n=7$):

1 5 8 9 4 4 4

z-score=

Standardized Value of mean is always _____

You are flipping a quarter. You flip the same quarter 4 times.

What is the probability that you will 'flip' at-least 1 'heads'?

What is the probability that you will flip no 'heads'?

Central Limit Theorem is _____.

Law of Large Numbers is _____.

How are the normal distribution & probability related concepts?

What's the probability of obtaining a standardized value 1.5 deviations above the mean?

2.0 deviations?

2.73 deviations?

4. Z & T Tests

Identify the critical value for the z-test outline below and determine whether to accept or reject hypothesis:

$$\begin{aligned}\mu &= 16 \\ \sigma &= 1.7 \\ \bar{X} &= 12 \\ N &= 31 \\ \alpha &= .01\end{aligned}$$

Identify the critical value for the T-Test outlined below and determine whether to accept or reject hypothesis under two circumstances: 1. Equal Variance Assumed 2. Equal Variance NOT assumed

Region 1	Region 2
$N_1 = 31$	$N_2 = 268$
$\bar{X}_1 = 10.8$	$\bar{X}_2 = 7.4$
$s_1 = 4.1$	$s_2 = 3.7$
$\alpha = .01$	

Assumed

Not Assumed

5. Chi-Square & Crosstabs

1. Calculate the mean for columns 2 (X_1) & 3 (X_2) of the MULTIPLE REGRESSION DATA provided in the reserve note pack. Reclassify Columns 2 & 3 of data into two classes (HI/LO) based on the observed mean. Cross tabs of the results below.

Column 3

		Column 3		n/%
		HI	LO	
Column 2	HI			
	LO			
		n/%		

3. Enter the data into a spreadsheet and perform chi-square analysis on the data using SPSS. Attach a copy of the results to this assignment.

6. Correlation & OLS (if time allows)

1. Enter the “MULTIPLE REGRESSION DATA” found in the reserve notes into spreadsheet. Using SPSS perform calculate a correlation matrix for all variables (Y, X₁, X₂, & X₃). Attach the results from SPSS to this sheet. Describe the direction & strength of relationships between variables.

2. Define the terms *independent* and *dependent* with respect to OLS.

3. Perform OLS (LINEAR REGRESSION) using the “MULTIPLE REGRESSION DATA”. Describe the relationship between the dependent (Y) and independent (X...)variables. Attach the results from SPSS to this sheet.