DESCRIPTIVE STATISTICS: FREQUENCY DISTRIBUTION TABLES

Purpose of Descriptive Statistics:

Raw Data:

Frequency (*f*):

Frequency Distributions

What they are:

How they're constructed:
1.

2.

3.

KINDS OF FREQUENCY DISTRIBUTION TABLES

Ranked distribution
What it is:

e.g. A set of N = 20 scores for problem sets
8, 9, 8, 7, 10, 9, 6, 4, 9, 8, 7, 8, 10, 9, 8, 6, 9, 7, 8, 8

Simple Frequency Distributions

What it is:

X	*f*

Characteristics:

1.

2.

3.

4.

5.

How many scores are there?

$$\sum f = n$$

To obtain the sum of scores:

(1) list each individual score & simply add them

$\sum X =$

OR

(2) multiply each X value by its frequency & then add these products

X	***f***	***f*X**
$\sum fX$ =		

PROPORTIONS & PERCENTAGES

Proportion:

$p = f/N$

Percentage:

$p(100) = \frac{f}{N}(100)$

X	***f***	***p*= *f*/N**	**%=*p*(100)**
10	2		
9	5		
8	7		
7	3		
6	2		
5	0		
4	1		

GROUPED FREQUENCY DISTRIBUTION TABLES

Why to use:

Important Terms:

Range = URL highest score – LRL lowest score =
= # of rows = highest – lowest + 1 =

Intervals

class intervals

interval size or width: $i = \frac{\text{range}}{\text{number of intervals}}$

$$\text{number of intervals} = \frac{\text{range}}{i}$$

Guidelines for constructing a grouped freq distribution table:
1.

2.

3.

4.

Example
N = 25 exam scores
82, 75, 88, 93, 53,
84, 87, 58, 72, 94,
69, 84, 61, 91, 64,
87, 84, 70, 76, 89,
75, 80, 73, 78, 60

range = highest – lowest =

# of rows =

interval width of 5 produces how many *intervals?*

X	***f***

<u>Definitions for Other Column Headings</u>

Apparent limits

Real limits

lower real limit = lower apparent limit – 0.5
upper real limit = the upper apparent limit + 0.5

Midpoint

$$\text{Midpoint} = \frac{\text{lower limit} + \text{upper limit}}{2}$$

Frequency (*f*)

Cumulative frequency (cum *f*)

Relative frequency (*rel f*)

$$rel.f = proportion = p = \frac{f}{N}$$

Cumulative relative frequency (*cum rel f*)

Cumulative percent (*cum %*)

$$cum\% = percentage = p(100) = \frac{f}{N}(100)$$

real limits	apparent limits (*X*)	midpt	*f*	cum *f*	rel *f*	cum rel *f*	cum % *p*(100)

GENERATING A GROUPED FREQUENCY DISTRIBUTION

Willerman, Schultz, Rutledge, & Bigler (1991) conducted a study of brain size and intelligence. They administered four subsets (Vocabulary, Similarities, Block Design, and Picture Completion) of the Wechsler (1981) Adult Intelligence Scale-Revised to 40 introductory psychology students. Subjects' IQ scores are shown below. *Complete a grouped frequency distribution for this dataset using an interval size of 10.*

Wechsler IQ Scores			
144	135	103	89
141	135	103	89
141	133	101	88
140	133	100	85
140	133	99	83
140	133	97	83
139	133	96	83
139	132	92	81
138	132	91	80
137	130	90	77

real limits	apparent limits	midpoint	*f*	cumulative frequency	relative frequency	cumulative relative frequency	cumulative percent