Chapter 2 Organizing Data

Course Number
Instructor
Date

Section 2.1 Frequency Distributions, Histograms, and Related Topics

Objective:
In this section you learned how to organize raw data using a frequency table, how to construct histograms and relative-frequency histograms, how to recognize basic distribution shapes, and how to interpret graphs in the context of the data setting.

Important Vocabulary	Define each term or concept.
Frequency table	
Class lower limit	
Class upper limit	
Class width	
Class frequency	
Class midpoint	
Upper class boundary	
Lower class boundary	
Relative frequency	
Relative frequency table	
Histogram	
Relative-frequency histogram	

Important Vocabulary Define each term or concept.

Mound-shaped symmetrical distribution

Uniform or rectangular distribution

Skewed left distribution

Skewed right distribution

Bimodal distribution

Outliers

I. Frequency tables

Focus Points
how to organize raw data using frequency table

Data are divided into classes. The lowest data value in a class is called the _____ and the highest value is the _____ _____. The average of them is called the _____. The difference between the lower class limit of one class and the lower class limit of the next class is called the _____. The number of values in a class is called the _____. A table showing the classes and corresponding frequencies is called a _____. The _____ of a class equals its frequency divided by the sample size.

The _____ equals the upper limit plus 0.5 and the _____ equals the lower limit minus 0.5.

Example 1. Given a data set of 10 numbers {1, 7, 8, 4, 4, 5, 6, 3, 8, 7}, construct a frequency table using four classes.

(a) The class width = _____.

(b) The lower class limits are _____.
(c) The upper class limits are _____.
(d) The class boundaries are _____.

(e) The class midpoints are _____.
(f) Make a frequency table below.

(g) The relative frequencies for these four classes are _____.

(h) Make a relative frequency table below.

II. Histograms and Relative Frequency Histograms

Focus Points
how to construct histograms and relative frequency histograms

A bar chart where the width of the bar equals the class width, and the height of the bar equals the class frequency is called a _____. Sometimes we use the relative frequency as the height. Then we have a _____.

Example 2. Make a histogram and a relative-frequency histogram for the data in Example 1.

III. Distribution Shapes

Focus Points
how to recognize basic distribution shapes and interpret graphs in the context of the data setting

A histogram has a _____ if its two sides are symmetric with respect to the vertical line that goes through the middle of the graph. A histogram has a _____ if every class has the same frequency. If the tail on the left is longer than the one on the right, then the histogram is _____. If the tail on the right is longer, then the histogram is _____. If a histogram shows two "peaks", that is, there are two classes with the largest frequencies that are separated by at least one class, then the histogram has a _____.

In some data sets, a few values are so high or so low that they are far away from the rest of the data. These values are called _____.

Homework Assignment

Page(s)

Exercises