

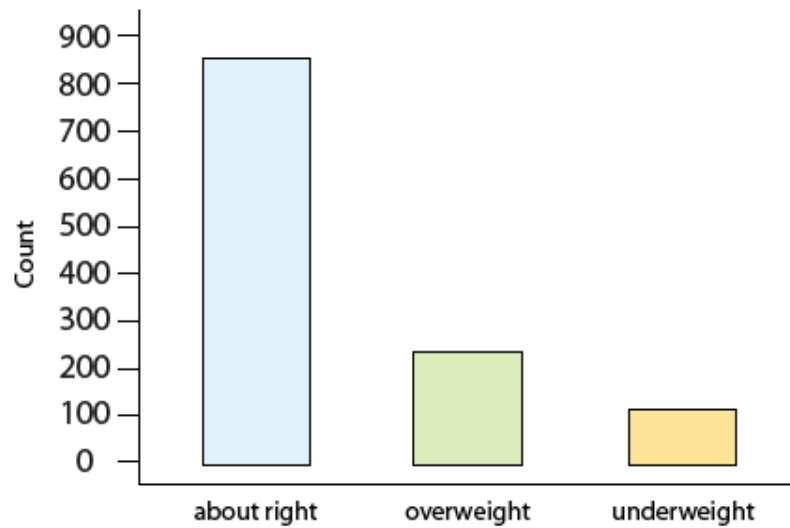
WESLEYAN

UNIVERSITY

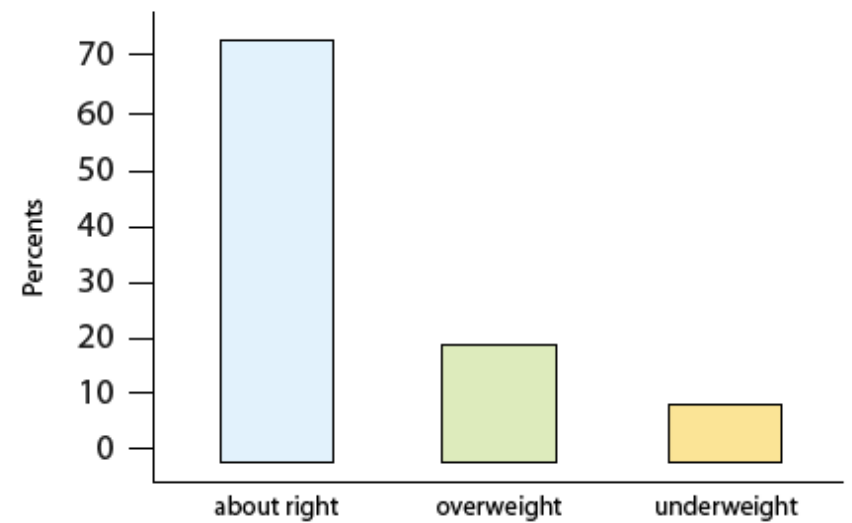
A word cloud featuring the word "GRAPHING" in various sizes and orientations, set against a blue background with wavy lines. The word "GRAPHING" is repeated many times, with some instances in a larger, bolder font and others in a smaller, lighter font. The word is also written in a script font. The word cloud is positioned in the lower half of the image, below the Wesleyan University logo.

Body Image Distribution

Bar Chart for Body Image



Bar Chart for Body Image

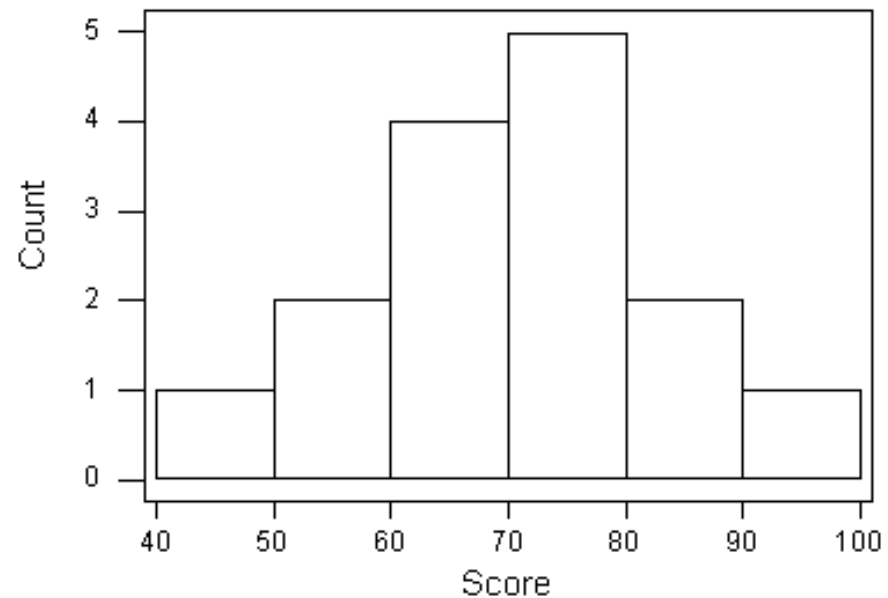


Example

Here are the exam grades of 15 students: 88, 48, 60, 51, 57, 85, 69, 75, 97, 72, 71, 79, 65, 63, 73

Exam Grades

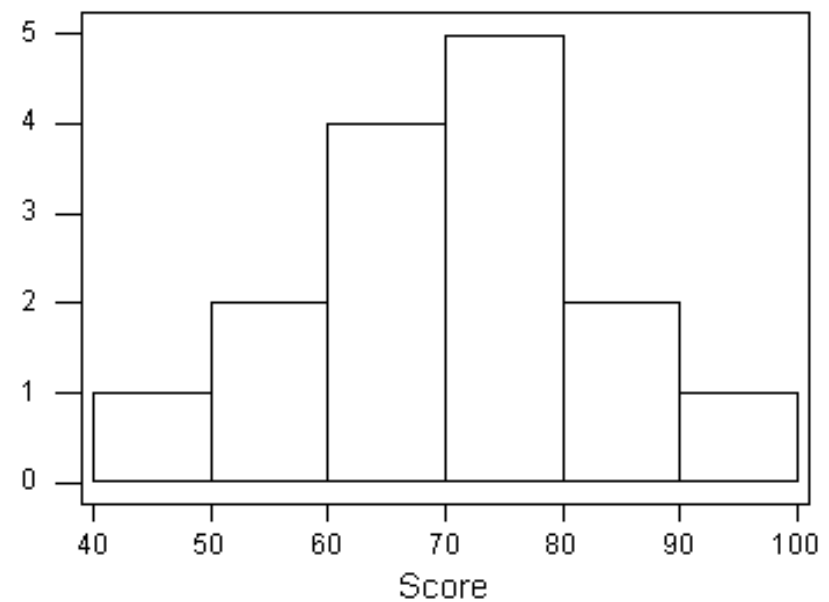
Score	Count
[40-50)	1
[50-60)	2
[60-70)	4
[70-80)	5
[80-90)	2
[90-100]	1



Interpreting the Histogram

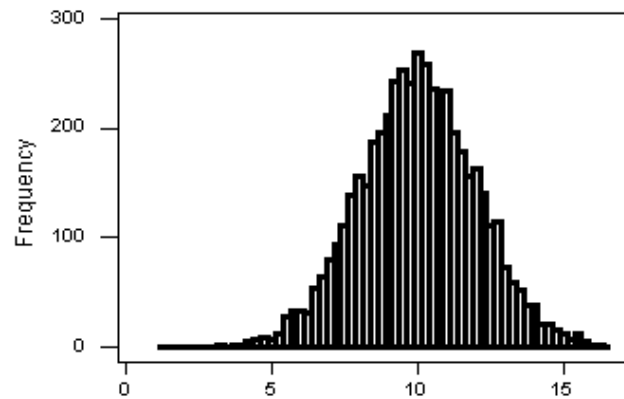
- Shape
 - Center
 - Spread
- } overall pattern

Exam Grades

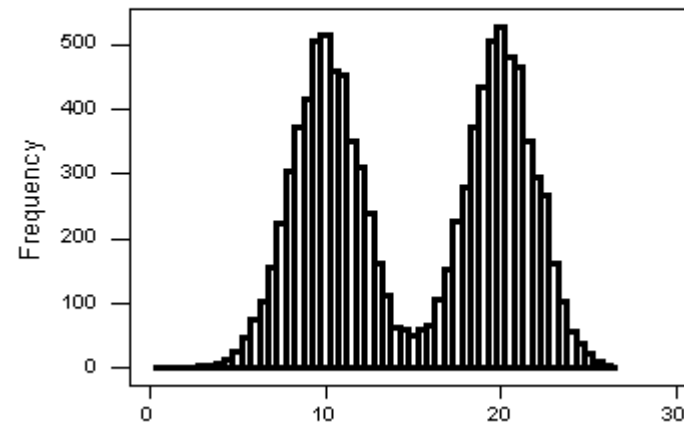


Shape: Symmetric

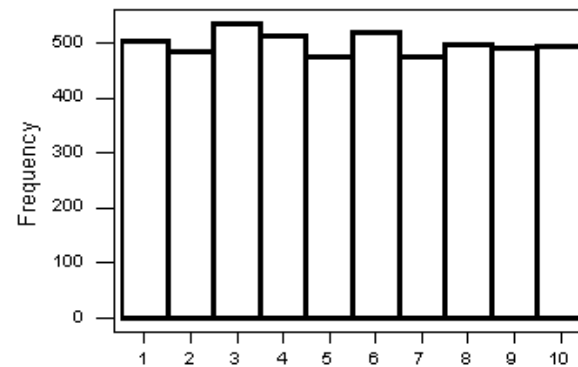
Symmetric, Single-peaked (Unimodal) Distribution



Symmetric, Double-peaked (Bimodal) Distribution

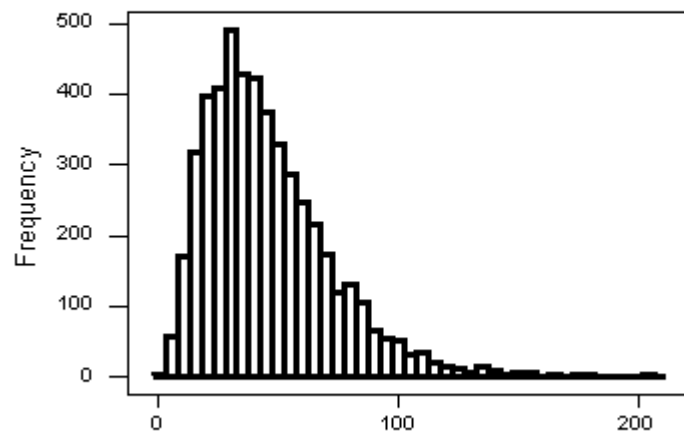


Symmetric, Uniform, Distribution

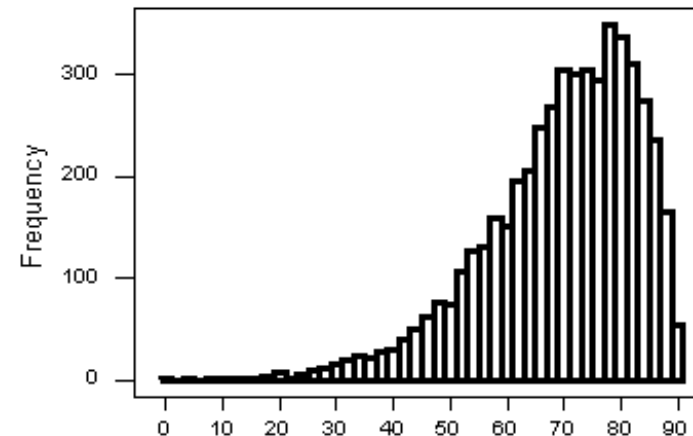


Shape: Skewed

Skewed-Right Distribution

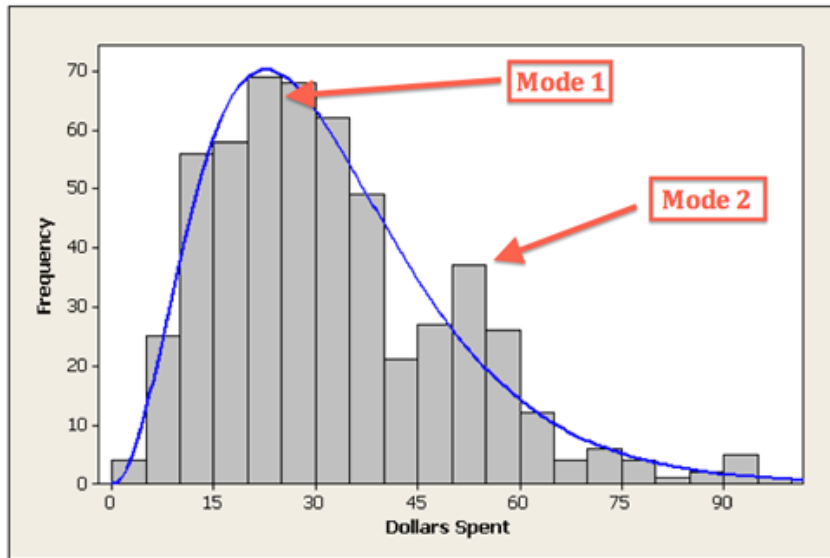


Skewed-Left Distribution

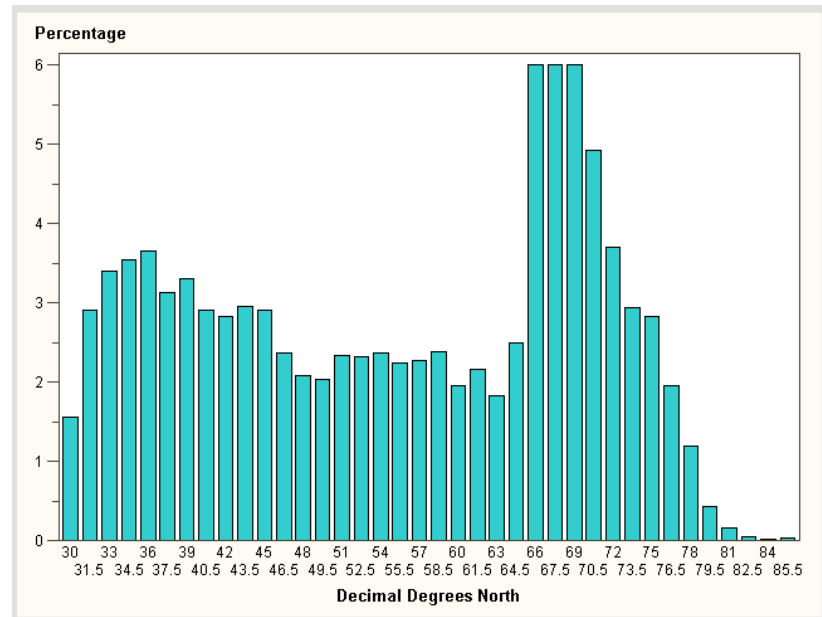


Shape: Skewed and Bimodal

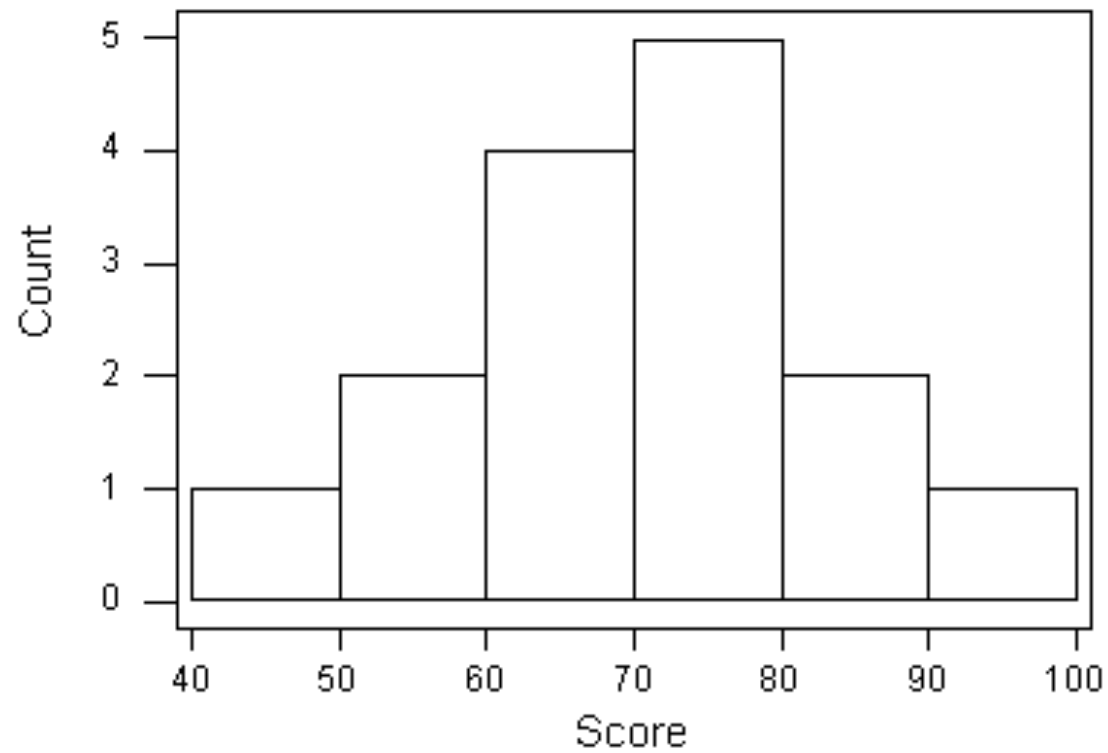
Convenience Store Spending



Latitude of Mars Crater Rims



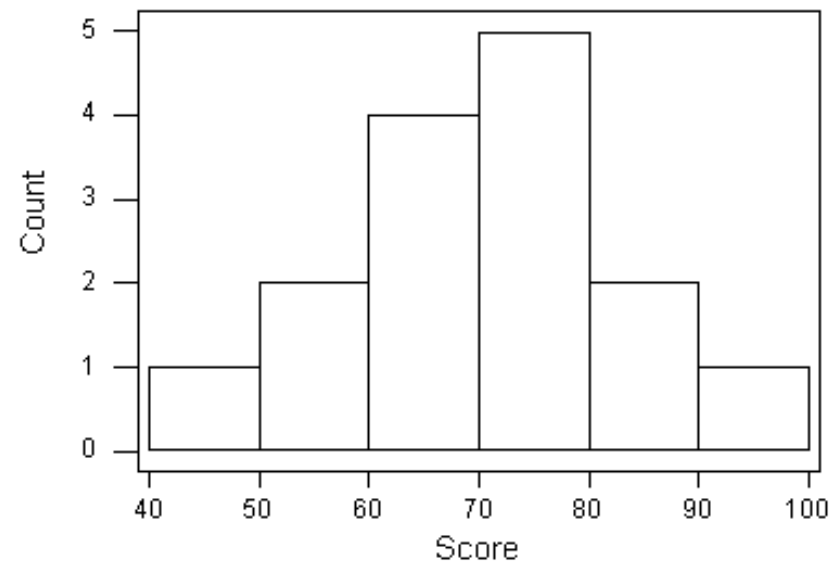
Exam Grades



Spread

approximate min:	45 (the middle of the lowest interval of scores)
approximate max:	95 (the middle of the highest interval of scores)
approximate range:	$95 - 45 = 50$

Exam Grades



MODE

Most commonly occurring value

MEDIAN

$n=7$



The Median M is the center observation, which is located in the $(7+1)/2 = 4$ th spot in the ordered list

$n=8$



The Median M is the mean of the two center observations, which in this case are located at the $8/2=4$ th and $8/2 + 1 = 5$ th spots in the ordered list

MEAN

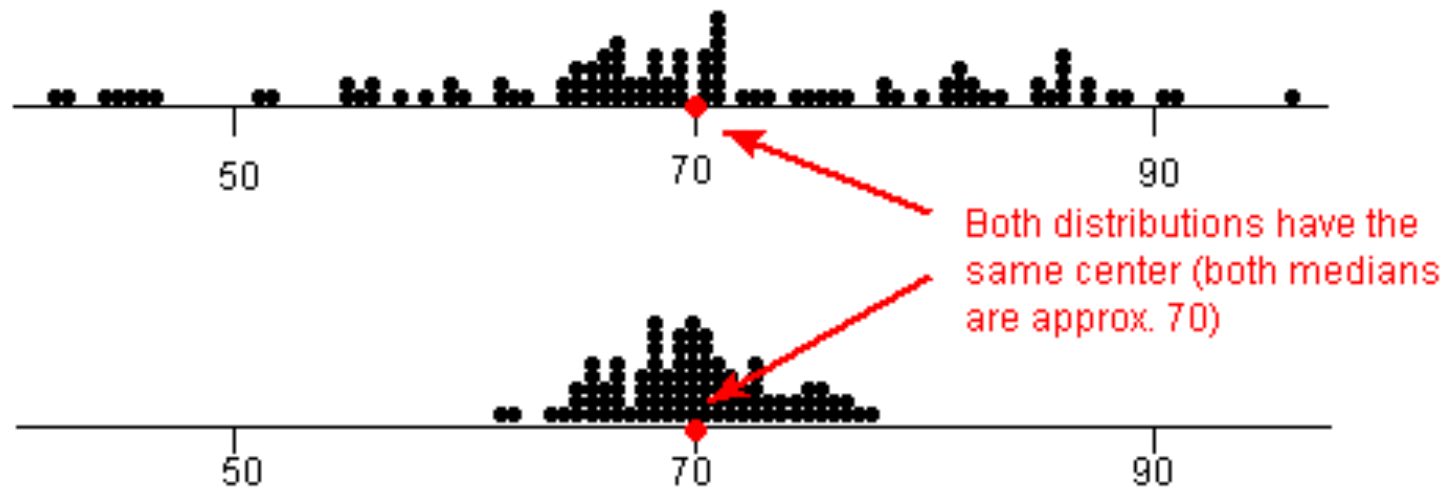
$$\bar{x} = \frac{x_1 + x_2 + \dots + x_n}{n}$$



Open Learning Initiative

Transforming higher education through the science of learning.

Numerical Measure of Spread



Spread: Variance and Standard Deviation

Number of customers entering a video store in 8 consecutive hours

7, 9, 5, 13, 3, 11, 15, 9

1. Find the mean, \bar{x} of your data:
$$\frac{(7 + 9 + 5 + \dots + 9)}{8} = 9$$

2. Find the deviations from the mean: the difference between each observation and the mean

(7 - 9), (9 - 9), (5 - 9), (13 - 9), (3 - 9), (11 - 9), (15 - 9), (9 - 9)

-2, 0, -4, 4, -6, 2, 6, 0

3. Square each of the deviations:

The first few are $(-2)^2 = \mathbf{4}$, $(0)^2 = \mathbf{0}$, $(-4)^2 = \mathbf{16}$, and the rest are **16, 36, 4, 36, 0**.

4. Average the square deviations by adding them up, and dividing by $n - 1$, (one less than the sample size):

$$\frac{(4 + 0 + 16 + 16 + 36 + 4 + 36 + 0)}{(8 - 1)} = \frac{112}{7} = 16$$

$$SD = \sqrt{16} = 4$$

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A word cloud graphic featuring the words "ASSIGNMENT" and "FOUR" in various sizes and orientations, set against a dark blue background. The words are arranged in a dense, overlapping pattern, with "ASSIGNMENT" appearing in larger, bolder fonts and "FOUR" appearing in smaller, more numerous fonts. The colors of the text range from light blue to dark blue, creating a gradient effect. The overall shape of the word cloud is roughly rectangular, with the words filling most of the space.