

Lecture 6

Variability – refers to the extent to which the scores in a distribution differ from their central tendency.

I) Why important in real terms:

Teachers & O rings

II) How are these sets of numbers different? Tell me stuff.

<u>Group 1</u>	<u>Group2</u>	<u>Group3</u>
3,200	2,400	3,200
4,000	4,000	4,000
3,300	3,600	3,900
3,100	3,000	2,500
2,400	3,000	2,400

A) Range & Problems

B) Mean Deviations-the absolute difference of each score from the mean.

$$\frac{\sum |x_i - \bar{x}|}{N} = S$$

C) Standard Deviation is defined to be the positive square root of the variance. It provides the average number of units that the typical score is off the mean.

Deviation Score Method (not recommended after we learn the short-cut method).

$$S = \sqrt{\frac{\sum (x_i - \bar{x})^2}{N}}$$

Why bother to take the square root in measuring dispersion?

- 1) the "standard deviation" turns out of considerable use in association with normal curves**
- 2) allows one to stay in original units of measure (not non intuitive square units).**

It is very useful with normal distributions because of the empirical rule:

**—
X +/- 1s contains approximately 68% of the measurements**

**—
X +/- 2s contains approximately 95% of the measurements**

**—
X +/- 3s contains approximately 99% of the measurements**