

The Concept of Variance

Variance refers to the variability of scores about a mean.

DESCRIBING VARIABILITY IN A SET OF SCORES:

- The standard deviation (*SD*) describes the average deviation of scores from the mean.
- The standard deviation is found by first calculating the *variance*.
- The variance is then found by subtracting each score from the mean, and then squaring the difference. The total of these squared differences is divided by the number of scores.
- The standard deviation is the square root of the variance.

VARIANCE AND STATISTICAL SIGNIFICANCE:

- In a simple experiment with two groups, there are three types of variance.
- *Error variance* is the average variability of scores about their respective group means.
- *Systematic variance* is the average variability of the group means about the grand mean (mean of all scores in all groups).
- A statistically significant result is most likely when systematic variance is large and error variance is small.