

covariance

A measure of the *correlation* of two *random variables* formed by the *mean* of the product of their deviations:

$$\text{cov}(X, Y) = \frac{1}{n} \sum (X - \mu_X)(Y - \mu_Y)$$

When the covariance of two variables is a positive value, the variables are (positively) correlated and when the covariance is negative, they are anticorrelated or negatively correlated (\rightarrow *anticorrelation*). To express the degree of correlation, the normalized covariance is used. See *correlation coefficient*.

The *sample* covariance is defined as

$$s_{x,y} = \frac{1}{n} \sum (x - \bar{x})(y - \bar{y})$$

Because covariance is a measure of correlation rather than *dispersion* (\rightarrow *variance*), no *Bessel's correction* is performed.