

# Download Spearman's Rank Formula

In statistics, Spearman's rank correlation coefficient or Spearman's rho, named after Charles Spearman and often denoted by the Greek letter (rho) or as  $\rho_s$ , is a nonparametric measure of rank correlation (statistical dependence between the rankings of two variables). It assesses how well the relationship between two variables can be described using a monotonic function. When data is not normally distributed or when the presence of outliers gives a distorted picture of the association between two random variables, the Spearman's rank correlation is a non-parametric test that can be used instead of the Pearson's correlation coefficient. In mathematics and statistics, Spearman's rank correlation coefficient is a measure of correlation, named after its maker, Charles Spearman. It is written in short as the Greek letter rho or sometimes as  $\rho_s$ . It is a number that shows how closely two sets of data are linked. It only can be used for data which can be put in order, such as highest to lowest. Kendall's as a particular case. If  $R_1, R_2, \dots, R_n$  are the ranks of the  $n$ -member according to the  $X$ -quality and  $Y$ -quality respectively, then we can define  $C = \sum_{i < j} (R_{1i} - R_{1j})(R_{2i} - R_{2j})$ ,  $D = \sum_{i < j} (R_{1i} - R_{1j})(R_{2j} - R_{2i})$ . The sum  $C$  is the number of concordant pairs minus the number of discordant pairs (see Kendall tau rank correlation coefficient). The sum  $D$  is just  $(n-1)n/2 - C$ , the number of terms, as is  $C + D$ . Thus in this case,  $\rho_s = \frac{C}{C + D}$  - Spearman's Rank Formula