STATISTICS 2
WS 2023/24 (Mag. Thomas Forstner)

Course-Number: 366.554

27) The table below shows the performance-score of students in Statistics 1 (X) and Statistics 2 (Y)

	Student 1	Student 2	Student 3	Student 4	Student 5	Student 6	Student 7	Student 8	Student 9	Student 10
X	10	8	3	4	1	5	9	2	6	6
Y	7	9	5	3	2	6	10	1	4	8

   a) Calculate the Spearman-Rank correlation coefficient between X and Y.
   b) Construct a test to verify if the relationship between X and Y is statistically significant (alpha = 5%).

28) In a sociological study someone wants to know whether there is a statistically significant difference between the correlation of "stress with family social support" and "stress with loneliness". From a sample study of 405 persons the following correlation coefficients are known:

$$r_{\text{family social support, stress}} = -0{,}205$$

$$r_{\text{loneliness, stress}} = 0{,}285$$

$$r_{\text{family social support, loneliness}} = -0{,}495$$

Construct an appropriate test to answer the question (alpha = 5%).

29) Two persons are ranking 4 different wines on an ordinal scale (1 … worst to 5 … best). In the table below you will find the results of this ranking.

	Person A	Person B
Wine X1	2	1
Wine X2	3	4
Wine X3	5	5
Wine X4	2	3

   a) Calculate Kendall's Tau b as a measure of correlation between the results of these two persons.
   b) Verify if this correlation is statistically significant (alpha = 5%)