

**Task 11-1: Statistical Data Analysis**

1. The following data comes from a company with 50 employees. The table shows how many employees (NE) had how many absence days (AD) during the past year:

AD	0	3	5	9	12	18	21
NE	5	9	13	9	8	4	2

Use R to answer the following questions:

- What are the arithmetic mean, the mode, and the median for absence days of employees in that company?
  - Calculate the 3rd quartile and the 9th decile.
  - Calculate the average absolute deviation, the variance, and the standard deviation.
  - Which proportion of the company's total sick-leave time is represented by the 8 most frequently ill employees?
2. What exactly is a "significant result"? What exactly is the difference between a "significant effect" and a "big effect"?

**Task 11-2: Evaluating quantitative data analyses**

**Learning aim:** Practice analyzing and evaluating research that uses quantitative data analysis.

- Study a piece of research that used quantitative data analysis.
- Answer the questions from the "Evaluation Guide" below and explain your answers.
- Also, be prepared to give an elevator pitch introducing the piece of research you studied.

**Evaluation Guide: Quantitative Data Analysis**

(from "Researching Information Systems and Computing" by Briony J Oates)

- What kinds of quantitative data were analyzed (for example: nominal, ordinal)?
- Do the researchers use appropriate visual aids to explain their data and data analysis?
- What means do the researchers use, if any, for describing the central tendency, distribution and relationships in the data?
- Do the researchers justify their choice of statistical measures and tests, or assume that the reader will know what they are and why they are used?
- Do the researchers discuss the null hypothesis?
- How much of the report is concerned with analysis, and how much with interpretation of the results? Do you think the balance is appropriate?
- Are the researchers' conclusions justified on the basis of the data they have presented?
- What limitations in their quantitative data analysis do the researchers recognize?
- Can you identify other flaws or omissions in the researchers' use of quantitative data analysis?
- Overall, how effectively do you think quantitative data analysis has been reported and used?