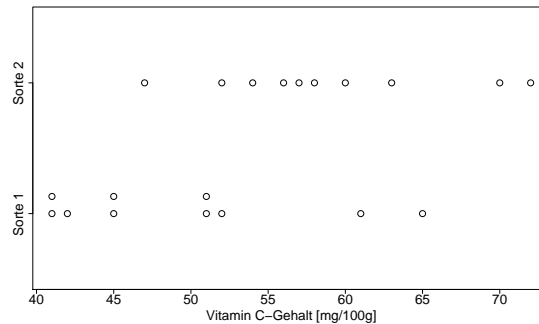


STATISTICS FOR EES — EXERCISE SHEET 8

1. The vitamin C contents of two types of cabbage were surveyed in 10 samples per type:



For the samples of type 1 a mean content of $\mu_1 = 49.4$ mg per 100g with standard deviation $s_1 = 8.33$ was found, for type 2 the values were $\mu_2 = 58.9$ and $s_2 = 7.74$. Test the hypothesis that the mean vitamin C contents is the same for both types with a t-test. You may assume that the true variances are equal.

2. From a cohort of high-school graduates 20 female students and 11 male students study biology, 6 female students and 12 male students study computer science, 2 female and 8 male students study physics, 5 female and 10 male students study mathematics, 5 female students and 1 male student study chemistry, and 10 students of each gender study statistics. Is the choice of the subject significantly gender-biased?

3. An autosomal locus in a diploid species has three alleles A , B , C . In a sample of 200 individuals from a population the observed frequencies of the different genotypes were as follows:

AA	AB	AC	BB	BC	CC
23	30	15	73	50	9

Perform a statistical test to shed light on the question whether this population is in Hardy-Weinberg equilibrium.