

Computer Assignment 2

Inference about mean vectors, MANOVA

Course code and name:	732A97 (2021) Multivariate Statistical Methods
Examiner:	Maryna Prus
Instructions:	Submit your report as a PDF file. All R-codes should be included into your report. The report should be written in English. The report should be handed in via LISAM or alternatively in case of problems emailed to maryna.prus@liu.se This assignment is a part of the examination.
Submission deadline:	23:59 on 14-th of February 2021

Recommended literature

Chapters 4-6 in Johnson, Wichern

For R codes: The Little Book of R for Multivariate Analysis

(<https://little-book-of-r-for-multivariate-analysis.readthedocs.io/en/latest/>).

Problem 1

Consider the bird data in the file T5-12.dat and solve Exercise 5.18 on the scanned pages. (File T5-12.dat and Table 5.7 include the same data).

Problem 2

Consider the data set "Skulls" on Egyptian skull measurements (available in R-Package *heplots* as data set *Skulls*). The observations are made for 5 epochs. For each observational unit the maximum breadth (mb), the basibregmatic height (bh), the basialveolar length (bl) and the nasal height (nh) were measured.

- a) Plot the data using graphs that you find informative. Justify your choice.
- b) Test (at 5% significance level) if the mean vectors differ for different epochs.
- c) Construct the 95% simultaneous confidence intervals for the components of the mean vectors.