

Lab Assignment No. 3: Two Independent Samples

PSGA7816 Multivariate Statistical Analysis

In completing your assignment you are expected to show every step in your work in the appended syntax file. Your typed assignment answers should include the products of your computations pasted into the body of your paper with appropriate remarks and comments.

Please attach a copy of your syntax (**not output**) to the assignment you will be turning in. No e-mail submissions will be accepted. The dataset for the assignment (turtle.xls) will be e-mailed to students. Homework 3 is due **February 25, 2009 at 1:30 PM**.

- 1) Provide descriptive statistics of the dataset.
- 2) Check for the assumption of multivariate normality and equal variance/covariance matrices.
- 3) Assuming that $\Sigma_1 = \Sigma_2$, test $H_0 : \mu_1 = \mu_2$ against $H_a : \mu_1 \neq \mu_2$ at the $\alpha = 0.05$ level using Hotelling's T^2 test. Discuss.
- 4) What are the simultaneous 95% confidence intervals?
- 5) What specific conclusions can you draw about the three variables in regard to the two turtle genders?
- 6) What are the Bonferroni corrected 95% confidence intervals?
- 7) How do these last confidence intervals differ from the previous? Which of the two sets would you utilize and why?
- 8) Provide a traditional profile analysis means plot.
- 9) Given that a biologist would expect an average length of 125cm, width 95cm and a height of 45cm in general, give the deviation means plot for the two turtle genders.
- 10) Are the two profiles parallel? Support your answer with the appropriate test. What final conclusions can you draw about the two turtle groups?