

Homework 7 (Due on April 3)

March 27, 2014

STA 5172

ANOVA

Researchers compared protein intake among three groups of postmenopausal women: (1) women eating a standard American diet (STD), (2) women eating a lacto-ovo-vegetarian diet (LAC), and (3) women eating a strict vegetarian diet (VEG). The mean ± 1 sd for protein intake (mg) is presented in Table 12.29.

Table 12.29 Protein intake (mg) among three dietary groups of postmenopausal women

Group	Mean	sd	<i>n</i>
STD	75	9	10
LAC	57	13	10
VEG	47	17	6

1. Perform a statistical procedure to compare the means of the three groups using the critical-value method.
2. What is the p-value from the test performed in Part 1?
3. Compare the means of each specific pair of groups.
4. Suppose that in the general population, 70% of vegetarians are lacto-ovo-vegetarians, whereas 30% are strict vegetarians. Perform a statistical procedure to test whether the contrast $L = 0.7\bar{y}_2 + 0.3\bar{y}_3 - \bar{y}_1$ is significantly different from 0. What does the contrast mean?
5. Using the data in Table 12.29, perform a multiple-comparisons procedure to identify which specific underlying means are different.