

Unit 7 – Hypothesis Testing
Homework #12 (Unit 7 – Hypothesis Testing, part 2 of 2)

Due Monday November 30, 2015
Last submission date for credit: Monday December 7, 2015

#1. Halcion is a sleeping pill that is relatively rapidly metabolized by the body and therefore having fewer hangover effects the next morning, compared to other sleeping pills. Opponents of Halcion argue that, because this agent is so rapidly metabolized by the body, patients do not sleep as long with this drug as with Dalmane. Data on 10 insomniacs, each of whom took Dalmane on one occasion and Halcion on a second, is collected. The variable measured is number of hours of sleep:

Patient	<u>Number of Hours Sleep with</u>	
	Dalmane	Halcion
1	4.58	3.97
2	5.19	4.88
3	3.94	4.09
4	6.32	5.87
5	7.68	6.93
6	3.48	4.00
7	5.72	5.08
8	7.04	6.95
9	5.27	4.96
10	5.84	5.13

Do these data suggest that Halcion is not as effective as Dalmane with respect to number of hours of sleep? Carry out an appropriate statistical test and interpret your findings. You may assume that the measurements of sleep are continuous, distributed normal.

#2. For the Halcion versus Dalmane data in Exercise 1, construct a 99% confidence interval estimate of discrepancy in the efficacies of the two drugs. Compare this to the acceptance region that would have been obtained had you constructed a statistical test with type I error pre-specified at 0.01.