Module 18 Homework

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Commitment to Adult Animals

1. A=0.01
2. HO:UE-UN=0Ha:UE=UN<0, where U is the mean commitment, E is animals evacuated and N is animals not evacuated.
3. A 2 sample t test is required because (i) quantitative variable,(ii) two populations sampled and (iii) individuals in the population are independent,
4. An observational study with no randomization
5. nE+nN=241>40
6. XbarE+xbarN=1.294
7. T=0.678 with 239 degrees of freedom
8. P value=0.678
9. DNR p-value because p value is greater than a.
10. The commitment for adult animals is greater for people who evacuated than those who didn’t.

Methyl Mercury in Mussels

1. A=0.05
2. HO:UI-UR=0HA:UI-UR>0.where is U mean methyl mercury levels, I is impacted and R is reference.
3. A 2 sample t test would be used (I) quantitative variables (mercury levels) (II) two populations sampled (Impacted and reference).
4. A observational study with no randomization
5. nI+nR=13<40. The confidence interval is -0.003320152 at 95%. The two populations are independent(Table 2).
6. xbarI+xbarR=0.0959(Table 2)
7. t=1.5259 DF=11(Table 2)
8. p value=0.07763(Table 2)
9. DNR reject p-value
10. The methyl mercury levels in impacted watersheds is higher than those found in the reference sites.

R Stuff

library(NCStats)

df<-read.csv("Mussels.csv")

levenesTest(mercury.levels~sites,data=df)

t.test(mercury.levels~sites,data=df,var.equal=TRUE,alt="greater",conf.level=0.95)

Table 1 levenes test for homogeneity

Levene's Test for Homogeneity of Variance (center = median)

Df F value Pr(>F)

group 1 0.9144 0.3595

Table 2 Two Sample t-test with mercury.levels by sites

t = 1.5259, df = 11, p-value = 0.07763

Alternative hypothesis: true difference in means is greater than 0

95 percent confidence interval:

-0.003320152 Inf

sample estimates:

mean in group impacted mean in group reference

0.05733333 0.03857143