

**Psych 315, Winter 2021, Homework 6**

Due Friday, February 12th by 5pm.

Name \_\_\_\_\_ ID \_\_\_\_\_

Section [AA] (Natalie), [AB] (Natalie), [AC] (Ryan), [AD] (Ryan), [AE] (Kelly), [AE] (Kelly)

**Problem 1:** Suppose you wanted to test the hypothesis that the mean weight of male Maine Coon cats is greater than 20 lbs. You know that the population is normally distributed with a standard deviation of 3 lbs.

You go and measure the weight of 36 male Maine Coon cats and find a mean weight of 20.13 lbs. Is this mean significantly greater than 20? Use an alpha value of  $\alpha = 0.05$ . Test this hypothesis in the following steps:

a) Specify the null hypothesis ( $H_0$ ).

b) Specify the alternative hypothesis ( $H_A$ ).

c) What is the standard error of the mean ( $\sigma_{\bar{x}}$ )?

d) Convert your statistic into standard units with respect to your null hypothesis.

e) What is the critical value of z for rejecting the null hypothesis?

f) What is your decision? State it as a full sentence using APA format.

### **Problem 2**

A Gallup poll estimates that the average American gets 6.8 hours of sleep each night. From our class survey, our sample of 152 of respondents has mean of sleep of 7.41 hours of sleep each night with a standard deviation of 1.18 hours. Test the hypothesis that this mean is significantly different from the US population average of 6.8 hours in the following steps. Use an alpha value of 0.05.

a) Specify the null hypothesis ( $H_0$ ).

b) Specify the alternative hypothesis ( $H_A$ ).

c) What is the standard error of the mean ( $s_{\bar{x}}$ )?

d) Convert your statistic into standard units with respect to your null hypothesis.

e) What is the critical value of t for rejecting the null hypothesis?

**f)** What is your decision? State it as a full sentence using APA format

**g)** What is the effect size? Is it small, medium or large?

**h)** What is the p-value for this result? You can use the Excel calculator in tab D(t).'