Lab Project 2 (5 lab points)

Refer to the Class Data page for this lab. This lab can be done on this page.

You’ll also be referring to the Cabrillo Factbook. This can be accessed online by going to the Cabrillo web page (www.cabrillo.edu), then near the top left, going to “About” and then “Planning and Research,” and then clicking the link for the “Fact Book.”

Here’s the direct link: [http://cabrillo.edu/services/pro/factbook/](http://cabrillo.edu/services/pro/factbook/)

Due at or before Exam 2.

1. (5-3, 5-4) Go to the Cabrillo Factbook and find out what percent of students enrolled in Spring 2012 were female (look under Student Demographics -> Enrollment by Gender [scroll down]). Convert this percent to a decimal to get $p$, the probability of getting a female student when one Cabrillo student is randomly selected.

   \[ p = \ldots \quad \text{(so } q = \ldots \) \]

Now go to our class data. Our class data set size $n = \ldots$

Number of women in our class $x = \ldots$

Using the binomial distribution along with $n$ and $p$ from above, find $P(x)$ where $x$ = the number of women in our class.

\[ P(x) = \ldots \]

Given the probability you just found, is it unusual to have the number of women in our class that we do? Explain.

Find the mean ($\mu$) and the standard deviation ($\sigma$) using the binomial formulas on p.236, and $n$ and $p$ from above.

\[ \mu = \ldots \quad \sigma = \ldots \]

Find the maximum and minimum usual values for the number of women in a typical stats class.

\[ \mu + 2\sigma = \ldots \]
\[ \mu - 2\sigma = \ldots \]

Does our class fall within this range, or do we have an unusual number of women in our class?
2. (6-5) Give the following information about the ages in our class.

   The number of students in our class is $n = ____$

   Oldest = ____ years. Youngest = ____ years. Range = ____ years.

   Mean age = ____ years.

   Go back to the Cabrillo Fact Book: [http://pro.cabrillo.edu/pro/factbook/index.html](http://pro.cabrillo.edu/pro/factbook/index.html)

   This time look up the mean age of Cabrillo students in the Spring of 2012: ______ years

   Assume the standard deviation of the ages is 2 years.

   If one student is selected at random, find the probability that his/her age is between 29 and 31 years. **Draw a sketch for this problem.**

   If 40 students are selected at random, find the probability that the mean age height of such a group is between 29 and 31 years. Use the mean and SD for all Cabrillo students. Remember the Central Limit Theorem!