**INTD 8065 Data Analysis for Cancer Research**

**Homework #5**

1. Run the t test for the comparison of control diet and high fat diet presented in page 51-52 of Irizarry and Love (2015) assuming equality of variances. Compare your result with that of the analysis obtained in the book.

In what follows, we will use library pwr mentioned in Irizarry and Love (2015), page 64.

1. Download and install the library.
2. Use the function power.t.test in library pwr for calculating the power obtained by simulation in page 64 by Irizarry and Love for N=12 and . Use delta as the real difference between the population means. Assume the standard deviations of the two populations are equal and calculate it as

sd=sqrt(((n1-1)\*var(hfPopulation)+(n21)\*var(controlPopulation))/(n1+n2))

where n1 and n2 are the sizes of hfPopulation and controlPopulation, respectively.

1. Use now power.t.test for calculating the power for N=5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (this is the Ns sequence created for the graph in page 66). Overimpose your results to the graph generated in the book using red lines and dots.  
   *Hint:* You can pass a vector of N’s to the function, and extract the power values from the object you created using object$power. For overimposing your results, you can use the command line with the option type=”b”.
2. Repeat part 3. for the graph of power for different values of shown in page 67.
3. In this setting, use power.t.test for calculating the sample sizes for obtaining powers of 0.25, 0.5, 0.75 and 0.85. Use and . Comment your results.