**BIOS6643 Fall 2019 HW1 Practice questions**

Homework notes. IMPORTANT: please streamline your work, and in particular, what you include as SAS or R output. You can cut-and-paste certain sections of output that are relevant to answering the question; do not just include all output. Make sure to answer questions asked thoroughly. There are also practice questions that can be covered during office/recitation hours, if not during lecture.

1. Regarding the PCA performed on the Ramus data, we roughly interpreted PC1 through PC4 to be intercept, linear, quadratic and cubic components. The intercept component accounted for over 90% of the variability in the data. Look back at the R graph in the slides or notes. Does this make sense to you based on what you see? Explain.
2. A random walk model. Consider the random walk defined by , where with probability ½ and –1 with probability ½ (*Bt*, *t*=1,2,… are *iid*) and *Y*0 = 0. Let *t* and *h* be nonnegative integers.
3. Determine 
4. Determine 
5. Determine 
6. Is {*Yt*} a stationary process?
7. How do answers in a-d change when considering 0≤*p*≤1 rather than just p=½?