BIOS 830: Homework 5

Due on May 5, 2017

April 24, 2017

Instructions: Students are encouraged to work together on the assigned problems. However, each student is expected to *independently* write up the assigned problems. Since the questions that follow involve a combination of analysis, computing, and theory, students are welcome to hand in a combination of hand written solutions and computer output. For questions that involve computing and analysis, please provide the code (R/SAS) in a clean and readable document; points will be deducted for "messy code". **Assignments are to be turned in at the beginning of lecture on the due date above. Any assignments not turned in at this time will be considered late.**

Question 1: Binary Incomplete Block Designs.
On page 340 of Dean & Voss, it is mentioned that, "it is better to observed as many different treatments as possible in a block, since this tends to decrease the average variance of the contrast estimators. Therefore, when the block size is smaller than the number of treatments, each treatment should be observed either once or not at all within a block (e.g., binary blocks)." *Either through simulation and/or through a theoretical justification, please address this assertion.*

Questions 2-6:
In addition, please answer the following questions in Dean & Voss. Questions 6(a,b), 7, and 9 in Chapter 11. Questions 6 and 7 in Chapter 12.