

STAT 778, Spring 2018
Midterm (Due 7:20pm, March 28, 2017)

NAME & G# _____

I have taken this exam in accordance with the GMU Honor Code.

Signed _____

1. You are expected to conduct simulation studies to compare the performance of **two-sample** t-test and the Wilcoxon rank sum test under various scenarios.
 - Data generation
 - normal distribution
 - normal distribution with 2% random contamination with a large value in one group and without contamination in the other group
 - exponential distribution
 - Consider sample sizes $n = 25, 50, 100$ in each group
 - Report the type I error rates under the null hypothesis and powers for a number of parameter values under the alternative hypothesis
 - Write a report to describe the simulation studies and summarize the simulation results. You may present the results in tables or figures.

Note: (1). You are expected to choose the simulation settings on your own (e.g., mean and variance of the normal distribution, mean of the exponential distribution, etc.); (2). The report can contain two sections: one Method section describing the two methods and one Simulation Studies section; (3) If possible, type your report using LaTeX; and (4). You are required to work independently on the mid-term exam.

2. Bonus question. Please write your comments/suggestions about this course. Note that there are no correct or wrong answers. Any comments, suggestions, or critics are welcome. I will appreciate your inputs.