English Name:

Chinese Name:

Seat Number:

Lab 10

Instructions:

* Please review Activity 10.4 and the associated code (activity\_10\_4.R) before starting this lab.
* Read the “Example” box on the Helsinki Heart Study on pp. 625 – 626 in the textbook.
* Submit the following:
  + Complete responses to the questions in this document with the file name **Lab\_10\_NAME.docx**
  + Accompanying R code with this file name **Lab\_10\_Code\_NAME.R**

1. Why do you think the sample sizes for the gemfibrozil and placebo groups in the Helsinki Heart Study are not exactly the same? Describe how the researchers might have randomly assigned the 4081 subjects to the two treatment groups.
2. Using the results of the Helsinki Heart Study, describe the steps to simulate a randomization distribution of . You may use the simulation procedures in Activity 10.4 as a template. Note that for this simulation, you must retain the sample sizes for each treatment group in the original experiment.
3. Adapt the code in activity\_10\_4.R to plot a histogram of the simulations to approximate the randomization distribution of . Then superimpose the sampling distribution of . Insert the plot below.
4. Describe how you would use your simulation to estimate the p-value associated with the observed in the actual experiment. Calculate this estimated p-value and compare it with the p-value obtained in the “Example” box (p. 626 of the textbook).
5. How would you interpret your estimated p-value as a probability? Use the definition of a p-value as the basis for your interpretation.