

# STA 304H1F-1003H Fall 2019

## Assignment 1

### Question 2. (15 marks)

Let  $S = \{1, 0, 0, 4, 1, 6, 6, 3, 5, 3, 1\}$  be a small population of  $N = 11$  digits. Use R to do the following parts.

- (a) Use a Histogram to visually describe the population digits. (2 marks)
- (b) Give the values of the population parameters  $\mu$ ,  $\sigma^2$  and  $p$  (the proportion of 1's). (3 marks)
- (c) Draw a random sample of 5 digits with replacement and estimate  $p$  ( the proportion of 1's ). (2 marks)
- (d) Generate 1000 random samples of 5 digits with replacement from the population of digits. Plot the distribution of the sample proportion of 1's using a Histogram. (3 marks)
- (e) Draw a random sample of 5 digits without replacement and redo (c) (2 marks)
- (f) Generate 1000 random samples of 5 digits without replacement and redo (d). (3 marks)