

## Stat W 4201, Spring 2016

### Assignment #2: Due February 10

1. Suppose that  $\{X_1, X_2, \dots, X_n\}$  is a random sample from  $N(\mu, \sigma^2)$ . Construct a 95% confidence interval for  $\sigma^2$  under the following scenarios:

(a)  $\mu$  is known to be 0.

(b)  $\mu$  is unknown.

Fix  $n = 10$  and  $\sigma = 1$ . Run a Monte Carlo simulation to confirm that the confidence interval you constructed under the scenario (a) produces a coverage of 95%. Report how many random samples were drawn in your simulation and how close your coverage was to 95%.

2. Chapter 3, problem 22
3. Chapter 3, problem 25
4. Chapter 3, problem 28
5. Chapter 3, problem 32
6. Chapter 4, problem 19