# STAT S4201 001, Homework 2

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Code is attached here and also posted at https://github.com/BrianWeinstein/advanced-data-analysis. Where relevant, code snippets and output are are included in-line.

**Problem 1:**

*Suppose that* $\{X_1, X_2, \ldots, X_n\}$ *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%.*

Problem 1

**Problem 2: Ramsey 3.22**

asdf

**Problem 3: Ramsey 3.25**

(a) asdf asdf asdf

```
> apply(rawData, 2, mean)
       x1        x2        x3        x4        x5
 6.049104 -8.277221  4.665532  7.914270 62.138753
```

(b) asdfasdfasdf

i. asdf asdf asdf asdf

```
> apply(rawData, 1, mean)
  [1]  -0.1277116  20.8162864  -8.8984358  25.5999204  -9.7472153
  [6]  64.0626702  22.0392371  23.3914888  31.7598224 -13.8680290
...
 [91]   1.2105932  21.2145724  -8.4896595  19.0639963  20.9767512
 [96]   3.5962333  22.3461063   0.7145014   6.3080005  64.8829556
```

**Problem 4: Ramsey 3.28**

(a) Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus.

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**Problem 5: Ramsey 3.32**

**Problem 6: Ramsey 4.19**

## Todo list