

## 1. INTERVAL ESTIMATION INCLASS EXERCISE

**Names:**

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| 1.) | 4.) |
| 2.) | 5.) |
| 3.) | 6.) |

Instructions for

In this exercise, you will compute interval estimates for the mean of a sample of size 1000 from a normal population using the four methods we have covered:

- Classical large sample or "sigma known" confidence intervals
- Classical small sample or "sigma unknown" confidence intervals
- Bayesian credible intervals
- Bootstrap confidence intervals

Step 1: Read the data from the website using the command `x=read.csv("")` with the URL from the webpage pasted between the quotes.

This will create an R data structure called a **data frame**. To view the structure of this data frame, enter `str(x)`

This should show that the data frame `x` contains seven columns, named `X,x1,x2,x3,x4,x5,x6` (note that names in R are case sensitive)

Step 2: extract the data for your group. There is one data column for each group. The next step is to select the column for your group. If you are in group 1, enter the command `z=x$x1`. Group 2 should enter `z=x$x2` and so on. The number following `x$x` should be your group number.

Enter `str(z)` to see the structure of `z`, which should be an array of length 100 and type `num`. This is the data you will use to compute the various interval estimates.

Step 3: The JAGS software requires that the data be in a list structure. The next step is to select the column for your group. If you are in group

1, enter the command `z=x$x1`. Group 2 should enter `z=x$x2` and so on. The number following `x$x` should be your group number.

Enter `str(z)` to see the structure of `z`, which should be an array of length 100 and type `num`. This is the data you will use to compute the various interval estimates.

Step 4: Use the technology section of the web page to compute a "sigma known" confidence interval for the population mean. Use  $\sigma = 15$ .

Step 5: Use the technology section of the web page to compute a "sigma unknown" confidence interval for the population mean.

Step 6: Use the `source("")` command to run the R code from the website for the Bayesian interval estimates.

Step 7: Use the `source("")` command to run the R code from the website for the Bootstrap interval estimates.

Step 8: Have one member of your group submit a short writeup with your results to the eLearn dropbox for the Inclass Interval Estimation exercise.