

This Hands-On will not be graded, but you are encouraged to complete it. However, the best way to become a data scientist is to practice.

Bayesian Statistics Hands-On

For this hands-on, you will be determining which type of mold-removal solution works better: just bleaching objects, or bleaching them and scrubbing them down thoroughly out of 10,000 trials. Based on the priors you created, the mold-removal solutions have a 90% chance of working.

You're trying to determine whether the mold will grow back or not, using the following table:

Mold Removal Type	Mold Returned	Did Not Return	Ratio
Bleach	27	39	.41
Bleach and Scrubbing	10	45	.18

Complete A/B testing and Monte Carlo simulation using R. Please attach your R script file with your code documented and information in comments about your findings.

```
trials <- 10000
# Create a variable to hold onto the priors and the number of
# trials you want to extend this to.

alpha <- 9
beta <- 1
# Create your alpha and beta variables out of the priors which
# were 90% leaving the beta to be 10%.

samplesA <- rbeta(trials, 27+alpha, 39 + beta)
samplesB <- rbeta(trials, 10+alpha, 45 + beta)
```

```
# Your rbeta() is ready to be set up by placing the function
inside of a two separate sample variables. The alpha is added
with the Mold Returned and the beta is added with the Did Not
Return.
```

```
Bsuperior <- sum(samplesB > samplesA) / trials
```

```
# The sum() function is used to add up every time that samplesB
was greater than samplesA out of the total number of trials. You
are calculating the percentage of trials in which sampleB came
back greater than sampleA.
```

```
Bsuperior
```

```
# Print the answer of the function above.
```

```
# Bleach theres a .1318 % chance that the "bleach" is 99%
effective
```

```
0.1318
```