

# Assignment 2: Bootstrapping

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Load Packages.

```
library(tidyverse)
```

```
## Loading tidyverse: ggplot2
## Loading tidyverse: tibble
## Loading tidyverse: tidyr
## Loading tidyverse: readr
## Loading tidyverse: purrr
## Loading tidyverse: dplyr
```

```
## Conflicts with tidy packages -----
```

```
## filter(): dplyr, stats
## lag():    dplyr, stats
```

```
library(boot)
```

```
## Warning: package 'boot' was built under R version 3.4.3
```

```
library(nlstools)
```

```
##
## 'nlstools' has been loaded.
## IMPORTANT NOTICE: Most nonlinear regression models and data set examples
## related to predictive microbiology have been moved to the package 'nlsMicrobio'
```

Create survey data vector and proportion function, then bootstrap.

```
survey <- rep(1:0, c(22,14))
```

```
prop_fun <- function (x, i) {sum(x[i])/length(x[i])}
```

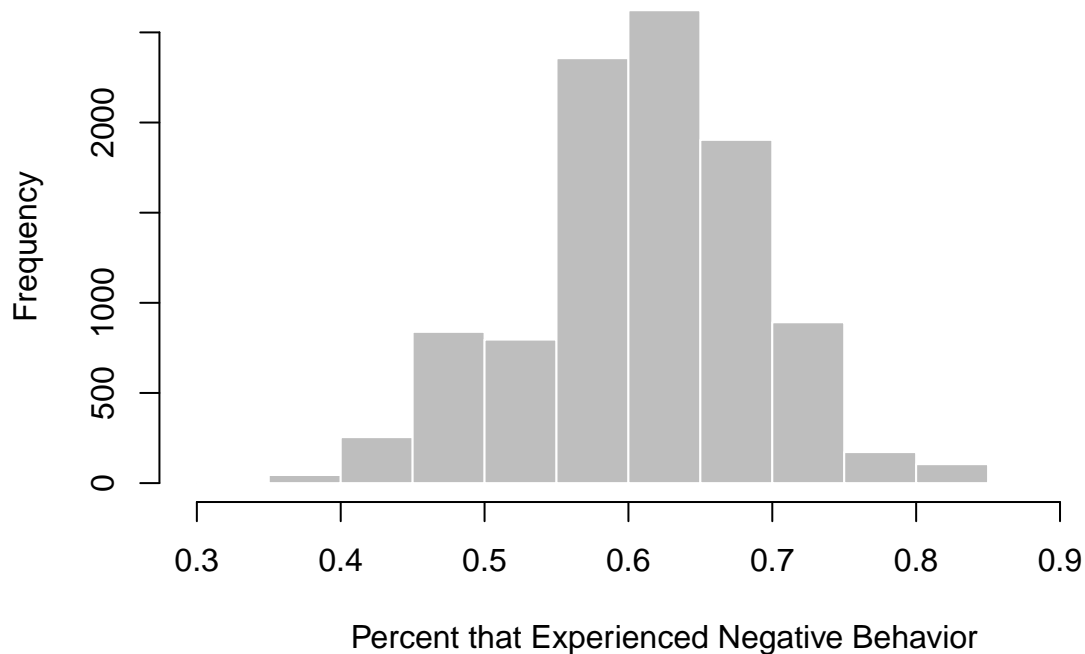
```
boot_10000 <- boot(survey, prop_fun, R = 10000)
boot_10000
```

```
##
## ORDINARY NONPARAMETRIC BOOTSTRAP
##
##
## Call:
## boot(data = survey, statistic = prop_fun, R = 10000)
##
##
## Bootstrap Statistics :
##      original      bias    std. error
## t1*  0.6111111  0.0005694444  0.08130464
```

```
hist(boot_10000$t,
     main="Histogram for UCSB Survey Bootstrap",
     xlab="Percent that Experienced Negative Behavior",
```

```
border="white",
col="gray")
```

## Histogram for UCSB Survey Bootstrap



```
survey_ci <- boot.ci(boot_10000, conf = 0.95, type = "perc")
survey_ci
```

```
## BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS
## Based on 10000 bootstrap replicates
##
## CALL :
## boot.ci(boot.out = boot_10000, conf = 0.95, type = "perc")
##
## Intervals :
## Level      Percentile
## 95%      ( 0.4444,  0.7778 )
## Calculations and Intervals on Original Scale
```

The mean percent of genderqueer students who responded that they had personally experienced “exclusionary, offensive, hostile or intimidating conduct” is 61% ( $n=36$ ), with a bootstrapped 95% confidence interval of [0.44, 0.7778] tons (10,000 bootstrap samples).