

R crash course goals

Goals

Things to be able to do:

1) read in your data

```
batdat = read.csv("bat_data.csv")  
#or  
#batdat = read.csv("Users/klangwig/Dropbox/teaching/bat_data.csv")
```

2) load and install packages

```
#install.packages("ggplot2") #install a package (or use GUI system)  
  
library(ggplot2) #load a package before use
```

```
## Warning: package 'ggplot2' was built under R version 3.4.4
```

3) get help

```
?"unique"
```

4) examine your data

```
unique(batdat$species)  
str(batdat)  
head(batdat)  
tail(batdat)  
dim(batdat)  
names(batdat)  
nrow(batdat)  
ncol(batdat)
```

5) do a calculation with your data

```
log(batdat$gdL)  
log10(batdat$gdL)  
3+3  
batdat$temp + 10
```

6) make a new column

```
batdat$log.loads = log10(batdat$gdL) #make a new column that is the log of this column
```

7) subset data - using subset(), or square brackets []

```
#using subset  
MYSE.dat = subset(batdat, species=="MYSE") #a factor/character, so need == and quotes  
dim(MYSE.dat) #what are the dimensions of the new data frame?
```

```
## [1] 12 12
```

```
warm.temps = subset(batdat, temp>6) #a number, so no quotes  
dim(warm.temps)
```

```
## [1] 258 12
```

```
#same thing using square brackets (say "where")  
MYSE.dat = batdat[batdat$species=="MYSE",]  
dim(MYSE.dat)
```

```
## [1] 12 12
```

```
warm.temps = batdat[batdat$temp>6,]
```

8) use aggregate or table to summarize some data

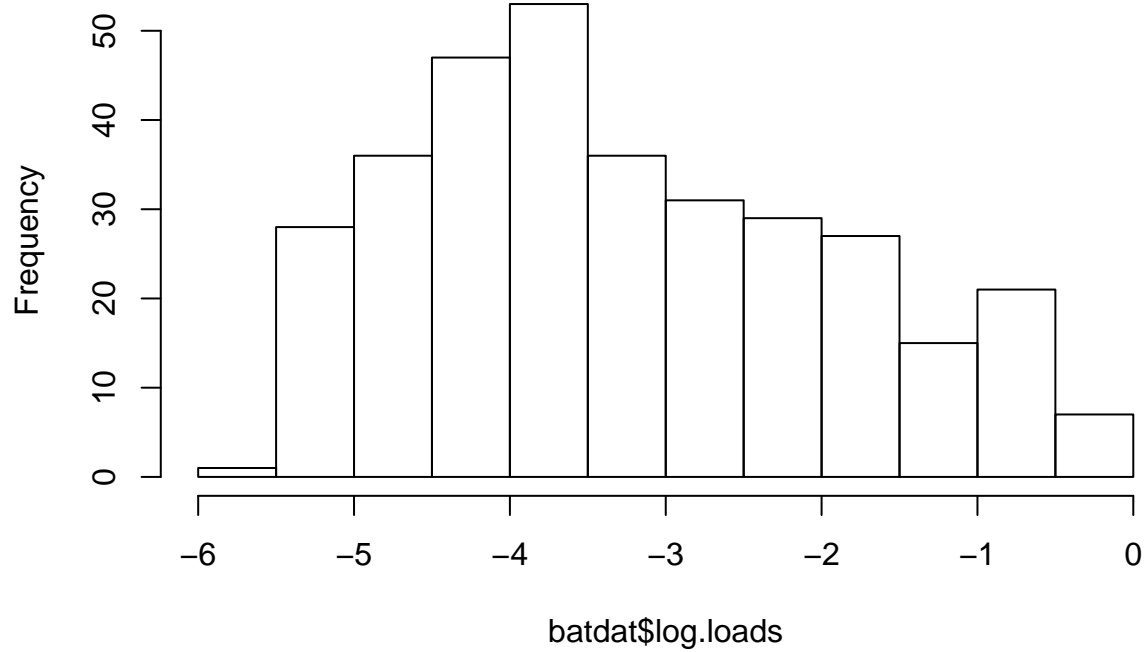
```
bat.summary = aggregate(log.loads~species, FUN=mean, data = batdat) #aggregate data using the mean to g  
bat.summary
```

```
##      species log.loads  
## 1      EPFU -3.642464  
## 2      MYLU -3.026398  
## 3      MYSE -3.688292  
## 4      PESU -2.039707  
## 5 SUBSTRATE -4.110905
```

9) make a histogram of a column in your data

```
hist(batdat$log.loads)
```

Histogram of batdat\$log.loads



10) write out a dataframe

```
write.csv(bat.summary, "bat.summary.csv", row.names = F)
```

11) save script, close R without saving workspace

12) re-open R, repeat the same thing by re-running your script after clearing your workspace

Helpful links:

<https://greggilbertlab.sites.ucsc.edu/teaching/rtransition/>

<https://www.statmethods.net/>