# R and RStudio Cheatsheet

## Preliminaries

**Load package**

```
library(hanoverbase)
```

## Load Data

**Data from package**

```
data(counties)
View(counties)    # Only in console
help(counties)    # Only in console
```

**Data Import**
- Upload local file or use a URL
- File > Import > Dataset > From . . .
- Add import code to code chunk (exclude the View command)

**Data Viewer**

**Order rows**
- Click on column heading
- Click again to change direction

**Filter**
- Click Filter button on top left of viewer
- Use controls below column headings

**Search**
- Use the search box in top-right

## RMarkdown Basics

**Main section**  ## Heading here

**Subsection**  ### Heading here

**Italic**  *text here*

**Bold**  **text here**

**Numbered List**  1. text here

**Unnumbered List**  – text here

**Blockquote**  > text here

# Summaries

## Numerical Variable

**favstats**

```
favstats(~pop2010, data=counties)
favstats(miles~direction, data=driving) # miles by direction
favstats(~miles|direction, data=driving) # same thing
```

```
median(~female|state, data=counties) %>% sort()
iqr(~poverty|state, data=counties)
```

## Categorical Variable

**median frequency**

```
tally(~state, data=counties)
tally(~state, data=counties) %>% sort()
```

```
tally(~genhealth, data=brfss, format="percent")
```

## Two Variables

**relative frequency Crosstabs**

```
# Column-wise percents
tally(~genhealth|sex, data=brfss, format="percent", useNA="no")
# Total percents
tally(~genhealth+sex, data=brfss, format="percent", useNA="no")
```

```
cor(mort_rate~own_rate, data=guns)
```

# Graphs

## One Variable

**Correlation Pie Chart**

```
tally(~genhealth, data=brfss, useNA="no") %>% pie()
```

```
histogram(~pop2010, data=counties, breaks=20)
histogram(~pop2010, data=counties %>% filter(pop2010 <= 2e6))
```

**Histogram Barchart**

```
tally(~state, data=counties) %>% barchart()
tally(~state, data=counties) %>% sort() %>% barchart() # Pareto chart
```

```
bwplot(state~female, data=counties)
```

**Boxplot Labeled Dotplot**

```
sum(~own_rate|country, data=guns) %>% sort() %>% dotplot()
```

### Two Variables

**100% Stacked Barchart**

```
healthVsExer <- tally(~genhealth|exerciseany, data=brfss,
    format="percent", useNA="no")
healthVsExer %>% t() %>% barchart(auto.key=list(space="right"))
```

```
xyplot(mort_rate~own_rate, data=guns)
ladd(panel.loess(x, y, col="magenta", lwd=2)) # add smooth fit line
```

### Three Variables

**Scatterpatoteled Scatterplot**

```
xyplot(mort_rate~own_rate|hdicat, data=guns)
```

### Colors

**list by name**

```
colors() # in console
```

```
display.brewer.all()  # in console
```

**paletteilist a palette**

```
brewer.pal(4, "Accent")
```

```
..plot..(..., col=name-or-palette, ...)
```

## Misc

### Linear Modeling

**add in graphdto graph**

```
ladd(panel.lmline(x, y, col="magenta", lwd=2))
```

```
fit <- lm(mort_rate~own_rate, data=guns)
coefficients(fit)
summary(fit)
```

**get modiaghostics**

```
xyplot(resid(fit)~fitted(fit))    # residual plot
ladd(panel.abline(h=0))
cor(mort_rate~own_rate, data=guns)^2  # r-squared
```

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