



R Code for Examples in the book

"Statistics: The Art and Science of Learning from Data"

by Agresti, Franklin and Klingenberg, 5th edition

Chapter 7

Example 3: Election Outcomes - Normal Shape of the Sampling Distribution

Reading in voter data

```
p <- 0.538
n <- 3889
```

To find the mean and standard deviation of the sampling distribution

```
mean <- p
stdev <- sqrt((p * (1 - p)) / n)
```

To compute the interval of possible sample proportions within 3 standard deviations of the mean

```
mean + c(-1, 1) * 3 * stdev
## [1] 0.5140164 0.5619836
```

To compute the interval of possible sample proportions within 2 standard deviations of the mean

```
mean + c(-1, 1) * 2 * stdev
## [1] 0.5220109 0.5539891
```

To compute the interval value for the plausible values for the actual population proportion

```
phat <- 0.531
se <- sqrt((phat * (1 - phat)) / n)
0.531 + c(-1, 1) * 3 * se
## [1] 0.5069931 0.5550069
```