

HOMEWORK: Chapter 2, #81, 85 (Due Friday)

R and R Commander

Check class website for instructions.

1. Download R and R Commander, or get account for ICS labs
2. Open R by double clicking icon
3. Open R Commander by typing `>Library(Rcmdr)`
4. Enter or import data
5. Do homework problems (save your work!)
6. Exit R and R Commander

Demo from Laptop

Open R

Library(Rcmdr)

Import data -> from url, comma separated, use <http://www.ics.uci.edu/~jutts/7/ucdavis1.txt>

Show data set.

Do various graphs.

Graphs → *Save graph to file* → *as bitmap* (or pdf, etc, if you prefer), then I usually choose JPEG. You can then insert it as a picture into a Word document, or you can just print it.

Do histogram, boxplot, stem and leaf plot.

Get females only:

Data-> Active data set-> Subset-> Sex == "Female"

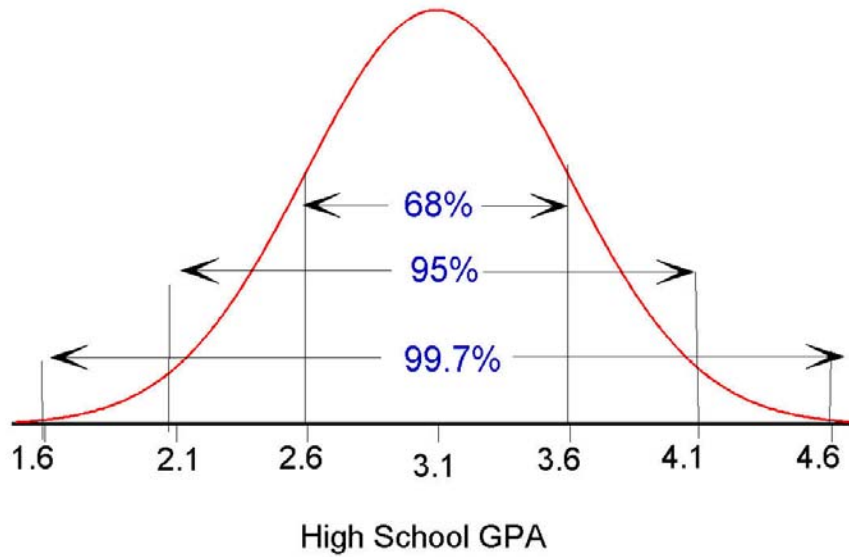
TO FIND PROPORTIONS FOR NORMAL DISTRIBUTIONS:

Distributions → *Continuous distributions* → *Normal distribution* → *Normal probabilities*

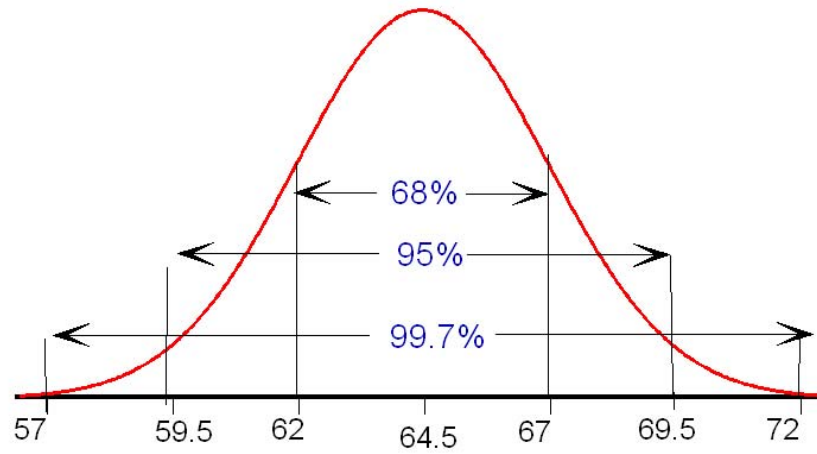
A pop-up box will ask you for the value, the mean, and the standard deviation. You do not need to compute the z-score first, just enter the appropriate mean and standard deviation. Alternatively (and more work) you can compute the z-score first, and then use the default mean of 0 and standard deviation of 1. In either case, the answer will appear as a decimal number in the Output Window.

ILLUSTRATING THE EMPIRICAL RULE

Mean = 3.1, s = 0.5

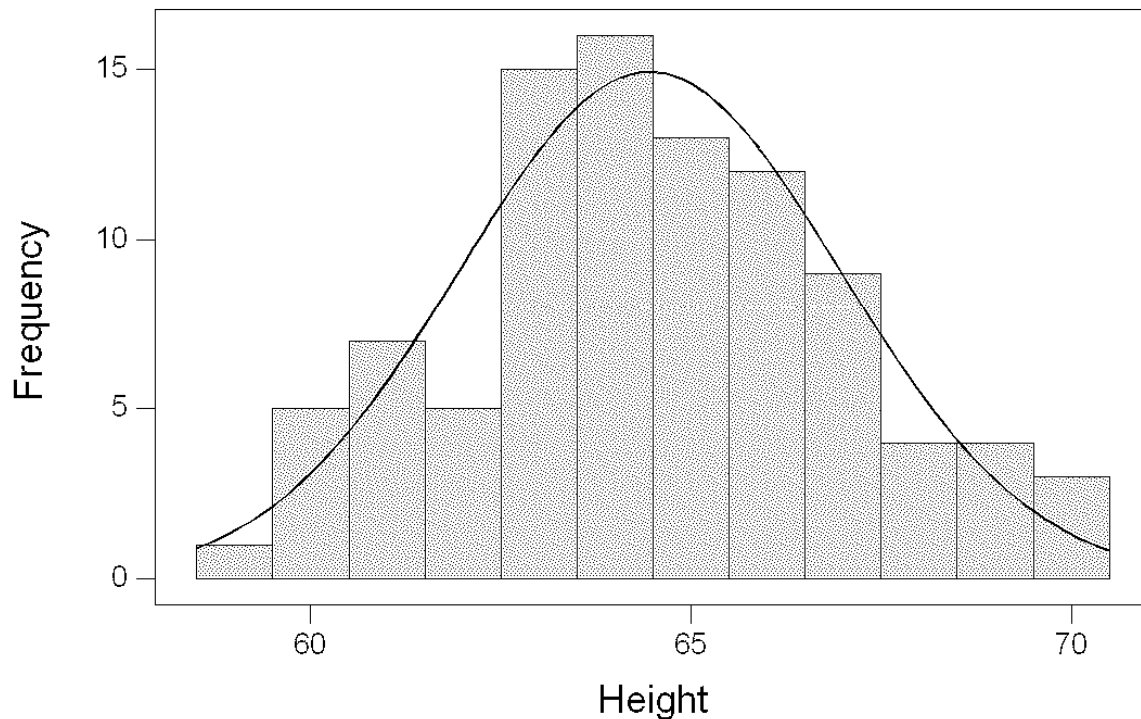


Mean = 64.5, s = 2.5



Women's heights

Histogram of Height, with Normal Curve



Mean = 64.5 inches, $s = 2.5$ inches, $n = 94$

CHECKING THE EMPIRICAL RULE:

Comparing theoretical to actual percents within 1, 2 and 3 standard deviations of mean:

Theoretical Range	Expected %	Actual, for sample of 94 women
Mean \pm 1 standard deviation 64.5 ± 2.5 62 inches to 67 inches	68%	$\frac{74}{94} = 74.5\%$
Mean \pm 2 standard deviations 64.5 ± 5 59.5 inches to 69.5 inches	95%	$\frac{89}{94} = 94.7\%$
Mean \pm 3 standard deviation 64.5 ± 7.5 57 inches to 72 inches	99.7%	$\frac{94}{94} = 100\%$