

Pointers for Section 2.2 – Frequency Distributions and Histograms for Continuous Data

Frequency Distribution

Begin by dividing the data into classes of equal width.

The lower class limit for the first class must be less than or equal to the minimum value in the data set.

It is a good idea to choose a round number (ending in 0 or 5) for the first lower class limit.

It is also a good idea for the class width to be a round number like 5, 10, 20, 25, ...

Add the class width to the first lower class limit to get the next lower class limit.

Keep repeating this process until you have gone past the maximum value from the data set.

The upper class limit is the value that is just below the next upper class limit.

If your first lower class limit is 20, your class width is 10, and the data are whole numbers, then the classes would be

20-29

30-39

40-49

...

If your first lower class limit is 20, your class width is 10, and the data are numbers with one decimal place, then the classes would be

20-29.9

30-39.9

40-49.9

...

A good rule of thumb is to not have too few classes (less than 5) or too many classes (more than 20). The data should dictate to you how many classes you should have.

Also, make sure that the classes do not overlap, and that there are no gaps between classes.

Once you have your classes, count up how many times each class is represented to find its frequency.

You would build the relative frequency distribution just as you had in the previous section – divide each frequency by the sample size.

StatCrunch

To create a frequency distribution in StatCrunch, there is a 2 step process. First you have to “bin” the data, then build a frequency distribution for these “bins”. (A bin is the same as a class.)

- Type all of the data in 1 column.
- Press the Data button and select Bin.
- Select the column containing the data.
- You can set the bin width (class width) or you can let StatCrunch choose automatically.
- Press Compute.

Your bins will now appear in the next column. Now for the frequency distribution ...

- Press the Stat button, and then Tables > Frequency.
- Select the column containing the bins.
- For Type you can choose Frequency, Relative Frequency, or both.
- Leave “Order by” as “Value Ascending”.
- Press Compute!

Histogram

A histogram for continuous data is similar to one for discrete data.

The left side of the bar goes at the lower class limit, while the right side of the bar goes to the next lower class limit.

The last class extends to the number that would have been the next lower class limit, if there had been a next class.

StatCrunch

- Type all of the data in 1 column.
- Press the Graph button and select Histogram.
- For Type you can choose Frequency or Relative Frequency.
- You can decide where to start the bins, or what the width should be, or you can let StatCrunch decide automatically.
- It’s a good idea to place the Value (frequency) above the bar.
- Press Compute!