Histograms

Histograms (bar graphs of tabulated frequencies) can be created in SigmaPlot

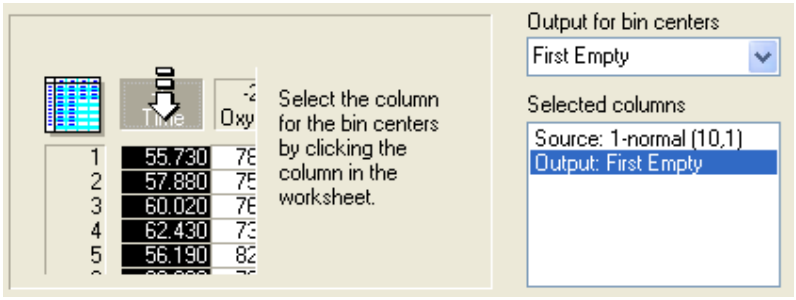
1. from the Graph Analysis section of the Analysis ribbon
2. as a bar graph from the Create Graph ribbon.

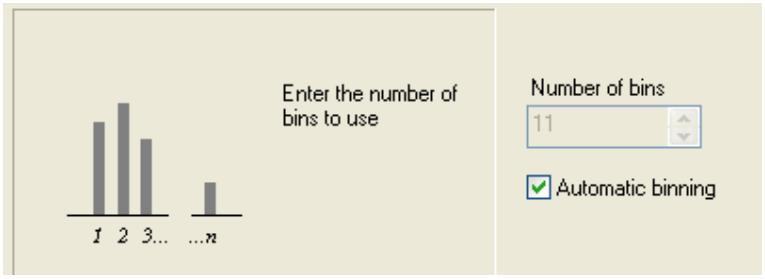
With both methods, there are options for
- graph style
- intervals: calculation of the bin (buckets, interval, class) frequencies.

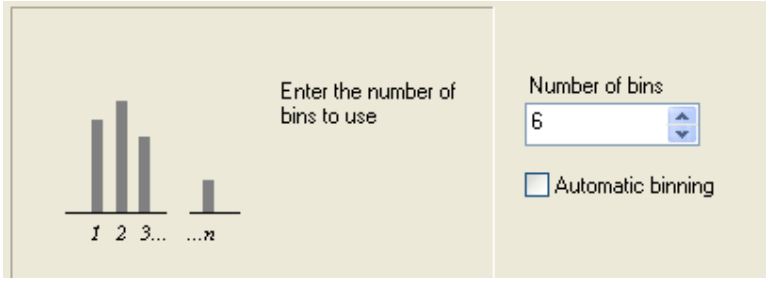
We use a data set from the “Gaussian Cumulative Sample Data” Section of the Macro Data Sets.JNB sample file.
You can open it from the Help menu > Macro Data Sets:.

1. Histogram from the Graph Analysis section of the Analysis ribbon

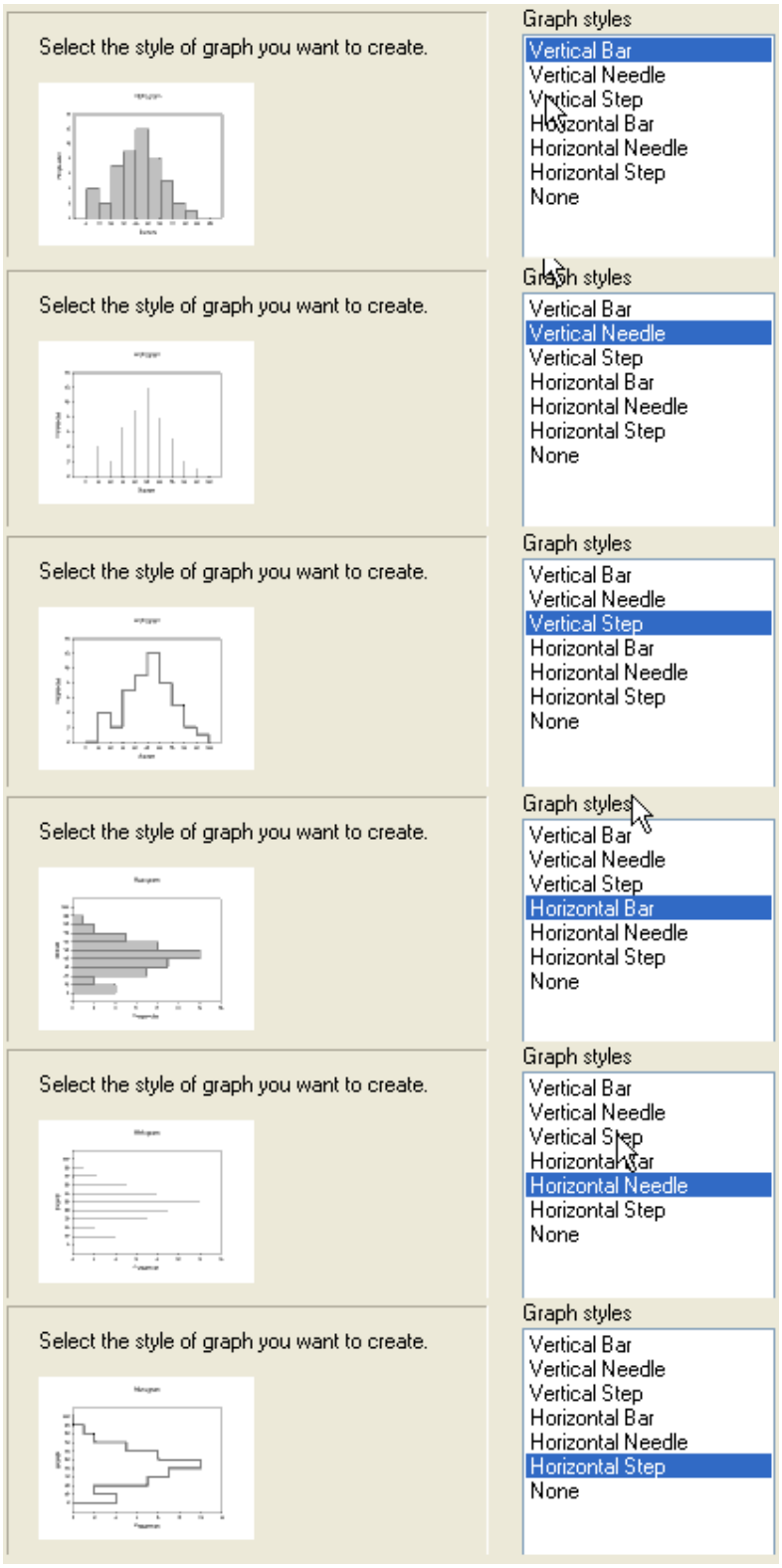
The built-bin Histogram graph function prompts for a data column, and for a column to write the interval frequencies. Then it prompts for the number of bins/intervals. It offers a default, but you can change that.

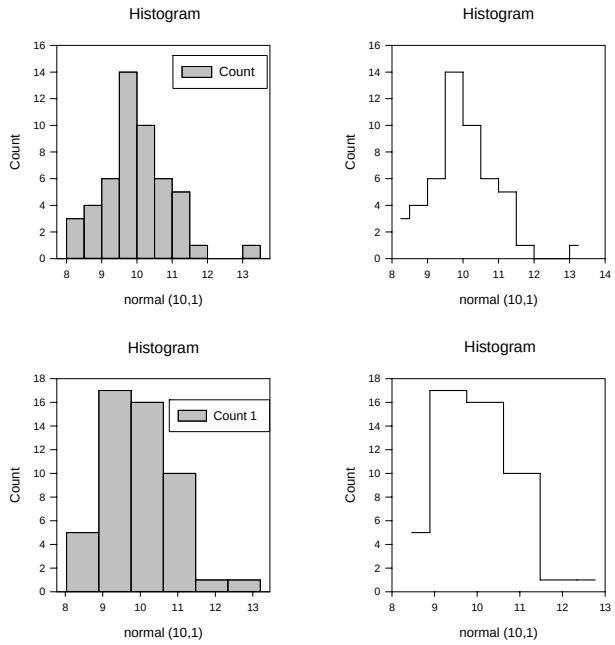






Finally, it offers a choice of bar, needle, or step plots, or no plot at all (only calculation of the frequencies).





Of course, the graph created with this special function can be edited and customized like any other SigmaPlot graph.

2. Histogram as a bar graph from the Create Graph ribbon

The histograms created with method (1) are equidistant, e.g. each interval has the same width, and their width is determined by the number of intervals.

With method (2), you can create histograms with any series of intervals, also those with varying width. Calculate the frequencies first, then create a bar graph to display them.

2.1 Interval frequencies

SigmaPlot's User-Defined Transform functions help to calculate the interval frequencies automatically. From the worksheet, select Analysis > User-Defined. Enter the transform text, and click ""Run" to execute it.

The "histogram (range; buckets)" function produces a histogram of the values range in a specified range, using a defined interval set. (See: Transform Help, press F1 in the edit window).

The range argument must be a single range (indicated with the {} brackets) or a worksheet column.

The buckets argument is used to specify either the number of evenly incremented histogram intervals, or both the number and ranges of the intervals.

The data for this example are in col(1).

Option a) Select the number of intervals:

To calculate the frequencies for 7 intervals of equal width

```
col(3) = histogram(col(1); 7)
```

Option b) Set the explicit range of intervals

```
col(2)  = {8; 10; 10,5; 11; 11,5; 12; 13}
col(3) = histogram(col(1); col(2))
```

or

```
buckets = {8; 10; 10,5; 11; 11,5; 12; 13}
col(2)  = buckets
col(3) = histogram(col(1); buckets)
```

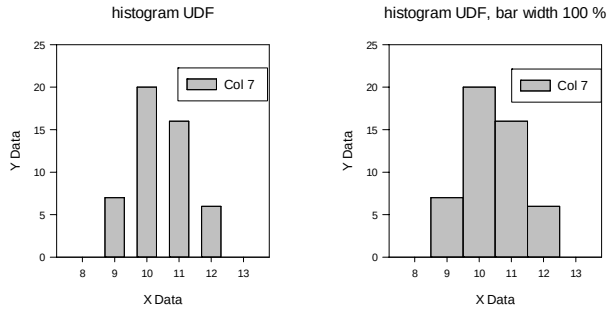
Notes:
- With the {...} syntax you create a data range.
- You can use the data range directly in the histogram function, or you can assign it to a variable (here: “buckets”).

IMPORTANT:
The data range has 7 values, but the histogram function will create 8 result rows.
The values in the range are the upper bounds of the histogram classes. There will alway be added one interval at the top, even if its count is zero.

2.2 Histogram graph

To create the histogram graph, select Create Graph > Bar Graph from the 2DGraphs ribbon section, or from the Graph Wizard.
Select XY Pair, X: buckets, Bar: histogram frequencies (here: columns 2 and 3).

By default, the bars have a width of 60%. To make them adjacent, go to the Graph Properties > Plot > Bar Widths > Bar thickness, and set it to 100%.



3. More examples

You find more histogram/bar graph examples in these sample files:

- Program directory\SigmaPlot\SPW12\Transforms\XFMS.JNB
There are pre-prepared graphs with “raw data” in this file. By running the appropriate transforms from the same directory, the display data are created. See the “Histogram Gaussian” and “Normalized Histogram” sections.

- Samples.JNB which you can open from the Help menu > SigmaPlot Sample Graphs

- Samples in the Program directory\SigmaPlot\SPW12\Samples\Sample Graphs directory