A Walk Through SigmaPlot
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**A Walk Through SigmaPlot**

So, you got a copy of SigmaPlot. You’ve taken a look at it, and you’re in over your head. What’s this Quick Start screen? What do I do with this worksheet? These are questions many new SigmaPlot users ask themselves all the time. This walk through SigmaPlot will address these issues, and more. It is designed to provide a step-by-step "hands-on" guide. All the files shown in the examples are installed with the tutorial so you can follow along, performing the same analyses and obtaining the same results shown here.

It is also designed to make it easy for you to start and stop anywhere you want. If you only want to learn about a few specific tasks, browse the Table of Contents to find the information you need, or work through all the lessons from beginning to end.

**Prerequisites**

You should know how to read and type.

You should be well rested and fed.

**Objectives**

By the end of this walk through SigmaPlot, you should know how to be able to:

- Create and modify a bar chart.
- Work with error bars.
- Create multiple plots and axes.
- Fit a curve.
- Work with 3D graphs.
- Use worksheet functions (data transforms).
- Use macros and the Toolbox.
Lesson 1: Creating and Modifying a Bar Chart

This lesson is separated into three sections, starting with how to create a bar chart. You can perform or skip different sections, but parts two and three, modifying the bar chart and using graph and page templates, assume you have already created a graph.

Objectives

When you complete this lesson, you’ll know how to do the following:

• Create a bar chart.
• Modify it using Graph Properties.
• Create graphs using the Graph Style Gallery.

Create a Bar Chart

This first part of the lesson assumes that you want nothing to do with the Quick Start screen (the screen that automatically appears every time you start SigmaPlot).

SigmaPlot and the Quick Start Screen

When you first start SigmaPlot, the Quick Start screen is the first thing you see. You may feel overwhelmed with the options. This is normal and healthy.
You’ve got a couple of options here:

- You can create a pre-formatted spreadsheet by clicking the **Create graph** tab. At no time will this be discussed in the tutorial. Just know that a pre-formatted worksheet is an empty worksheets that contain already defined column titles. An empty graph page is on the right. As you enter the data, the graph appears.

- You can click on the **Open notebook** tab, and either create a new notebook, open an existing one, etc.
We’ll start with the second option. Make sure **Create a new blank notebook** is selected, and click **OK**.

**Tip**

If you never want to see the Quick Start screen again, select **Do not show this screen at the startup** and click **OK**.

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**Enter Data into the Worksheet**

Once you close the Quick Start screen, you’re presented with an empty worksheet. The worksheet is primarily a data container, and secondarily a data manipulator. Although it lacks many of the formatting features that Excel possesses, it can hold much more data, and tends to be faster at handling large datasets.

Entering data is just like in Excel: type the value, then press Enter to go to the next row (you can also press the down arrow).

1. Enter a column of data (in this case, some text) into column one:
   a. a
   b. b
   c. c
   d. d
   e. e

2. Now press Home to move back to the top of the worksheet, press the right arrow to move to the next column, and enter:
   2
   6
   3
   1
   3

3. Now add titles to your columns.
   a. Click the column heading for column 1 to select the whole column, then type "x."
   b. Press Tab to move to the next column, and type "y." Press Enter when finished.

   Your worksheet should look like this.
Create the Graph

You create graphs using the Create Graph tab.

Here’s how you create the graph.

1. Click the Create Graph tab.
2. In the 2D Graphs group, click Bar.
   The Bar Group appears showing you all the available types of bar charts.
3. Select the first one, Simple Vertical Bar.
This opens the Graph Wizard, the heart of SigmaPlot.

### Select the Data Format

The Graph Wizard asks you to pick your data format, or, in other words, how you want to arrange your data. You have both an X and a Y column, so select **XY Pair** (note that the feedback graphic on the Wizard shows you an example), and click **Next**.

### Select the Data to Plot

Now the wizard asks you to select the data you want to plot.
There are many ways you can do this, so try each one:

- **Dragging on the worksheet.** Just drag over the column titles of the columns you want to plot, and they are picked as your data. You can also click each column individually.

- **Selecting a range.** You can also select a range of data to plot, by dragging your mouse over a region of the data. The range you select is shown in the Selected columns list.

- **Typing in column numbers.** You can also just type the columns you want to plot in the Data for drop down list. This feature is handy if you have lots of columns to plot. You can type a column at a time, or type a range. Try typing "1:2" into the drop down, and press Enter.

To clear the current selected columns, double-click the row in the Selected columns list.

Once you have finished picking the data to plot, click **Finish.** Your graph appears in a Sigma-Plot Page window.
Modify the Bar Chart

In this section, we’ll change the bar fill color, change the line color, and then take a quick look at Graph Properties. If the Graph Wizard is the heart of SigmaPlot, then Graph Properties is the brain.

Change the Bar Fill

Because SigmaPlot is a graphically-oriented graph editing program, you can click almost anything to select it, and use the pop-up tool bars to change the properties.

Tip

When you really want to edit a graph, you can double-click it to open. We’ll get to that a little later.

Let’s make a few typical changes to your graph, starting with changing the color of a bar fill.

1. Click one of the bars, but only once. This selects all of them.
   A tiny pop-up tool bar appears with three different icons for changing bar fills, line colors, and so on.
Note

If you click the bar a second time, then you select just that one bar. And you can change the fill color of just that bar as well.

2. Click the Paint Can icon.

A color palette appears.

3. Pick a color to change the bar fill color.

CAUTION

In latest release of SigmaPlot 12.5, if you follow these instructions, all but the actual bar that you clicked change colors. So to change the individual bar color, click it twice, and then follow the above instructions.

Change the Line Color

You can change the line color the same way, but this time, let’s only change one bar.
1. Click one bar, and then click it again. This selects that one bar.
2. On the pop-up tool bar, click the **Lines** icon.

3. Click **None**.

Notice how the outline color of that one individual bar changes from black to white.
Change the Bars Using Graph Properties

Let’s say you don’t want to change individual bar details, but would rather make global changes. This is where Graph Properties comes in. For this one, we’ll change the pattern of the fills to something more “artsy,” like an incrementing series of lines.

1. Double-click a bar fill to open.
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Note

You can double-click anywhere on the graph to open Graph Properties, but if you double-click a specific fill (or object, plot, axis, and so on), Graph Properties appears with the appropriate properties already in view.

2. Look under Pattern and edge. From the Pattern drop-down list, scroll up and then select Incrementing.
Because you’ve already made a change to one of the bars earlier, a Custom Settings message appears, asking if you want to override the changes you’ve just made.

3. Click Yes.

The graph immediately updates itself with the new incrementing line scheme.

**Remember**

If you don’t like what you’ve just done, you can press Ctrl+Z at any time to undo changes.

**Strolling through Graph Properties**

You might notice that Graph Properties has an interesting habit of turning almost invisible.

If you haven’t yet, test it out. Drag the dialog box directly over the graph and then move the cursor away. This way, you can immediately see changes you’ve made to the graph without having to constantly open and close Graph Properties.
By default, **Graph Properties** is set to 40% transparency. You can make it even more or less transparent or turn that whole feature off. Here’s how.

1. On **Graph Properties**, click **Help** and then click **Options**.

   a. If a transparent Graph Properties dialog box isn’t your cup of tea, clear **Use dialog transparency**.

   b. If you want to make Graph Properties temporarily invisible, select **Use dialog transparency** and then move the **Percent Transparent** slider all the way to the right.
As soon as you move your cursor off Graph Properties, the whole thing disappears. Move it back, and it appears again.

**Getting Help in Graph Properties**

Any time you find an option on Graph Properties you don’t understand, click **Help** and then **Dialog Box Help**. A Help topic appears specific to that Graph Properties panel appears.

Let’s close Graph Properties up for now. Click the x button on the upper right-hand corner.

**Edit Text**

Now let’s edit some text.

1. Double-click the graph title that reads "2D Graph 1."
   
   The graph page seems to double or even triple in size, while the text you’ve just selected is highlighted.
2. Type a graph title you like better instead.

3. Click anywhere on the graph, and it returns to its normal size with your new graph title.

4. Try this for the Y Data axis label.

Notice how the label immediately becomes horizontal. Over time, this can save you dollars in chiropractic visits!
Change the Font Everywhere

There are a couple of ways to change fonts on a graph page. The easiest thing to do is to click the text, and then use the pop-up tool bar that appears. You can change the font, its size, even its direction on the page.

This works well for individual items, but what if you want to change all of the text on the graph page? For this, we’ll have to leave the Create Graph tab, and do this instead:

1. Click somewhere in the center of the graph, just not on any object in particular.

   Square handles appear all along the outside of the graph. They look like this:

   ![Square handles on graph]

2. Or another thing you can do is just press Ctrl+A to select all. In fact, that works slightly better.

3. Click the **Graph Page** tab and then take a look at the **Text** group.

   ![Graph Page tab and Text group]

   You’ll see that the drop-down lists in this group appear blank, but they are blank *in appearance only*. They still work.

4. Hover the pointer over any one of the drop-down lists.

   A tool tip appears with the title of that drop-down list.

   **Restriction**

   All but **Line Spacing** are functioning in this instance.

5. Hover the pointer over the drop-down list that has the **Font** tool tip, and then select a font you particularly like.
6. Try this over the **Size** drop-down list.

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**Remove and Hide Axis Lines and Bring Them Back to Life**

The easiest way to remove an axis line is to select it and then delete it. But what if you want only to hide it? Here’s how:

1. Select the axis line on the graph.
2. Right-click, and then click **Hide**.
Remove and Hide Axis Lines and Bring Them Back to Life

3. **To bring the axis line back**, first double-click the graph.

4. In **Graph Properties**, click **Axis** and then **Lines** from the list of properties.

5. Look under **Show/place axes**. Notice how the option for the axis that you just hid has been cleared here.

The axis line disappears, or so it seems...
6. Select the axis to bring back.

   **Note**
   
   If the axis you hid isn’t listed, check the Axis drop-down list under **Current** at the top of **Graph Properties** and make sure the correct axis is selected.

7. Close Graph Properties.

**Resize the Graph**

To resize the graph, all you have to do is click anywhere in the center of the graph, like you did earlier, and drag any corner “handle”.

**Change Bar Widths**

For this drill, we’ll go back to Graph Properties, for there is no other way.

1. Double-click a bar on the graph.

   As stated earlier, typically double-clicking an object on a graph page takes you close to its available options in Graph Properties, but not always, like in this example.

2. So in the properties list (on the left-hand side of Graph Properties), click **Bar Widths** (under Plots).
3. Move the **Bar thickness** slider to see what happens.

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**Use Graph the Graph Style Gallery**

Now it’s time to move onto one of the lesser known features of SigmaPlot, the Graph Style Gallery.

Upon completing this section, you should be able to:

- Find the Graph Style Gallery.
- Save graphs to the Graph Style Gallery.
- Create a graph using the Graph Style Gallery.

**Find the Graph Gallery**

First you have to even find the Graph Gallery.

1. Click the **Home** tab.
2. In the **Navigate** group, click **Gallery pane**.

The **Graph Gallery** (or now just plain **Gallery**) appears in the same location as the **Notebook Manager** once was, or so you might think. You can see at the bottom of the pane two tabs, one for **Gallery** and one for the **Notebook Manager**.

**Save to the Graph Gallery**

So let’s say you feel a particular fondness for this totally awesome bar chart you’ve created. You like everything you’ve done to it, and you want to save all the attributes for future graphs.

1. Drag and drop your graph into the Gallery pane.
Create a Graph Gallery Graph

Now the graph appears in the Graph Gallery. From now on, you can create graphs that look just like it, without having to make millions of modifications each time.

Create a Graph Gallery Graph

What if you’d like to create a professionally designed graph without having to make an effort? Take a stroll through the graphs already in the Graph Gallery. If you see a style you like, you can apply all of its attributes to your own data. Let’s try that now.
1. Select the same data that you used before in the worksheet.
2. Create a new graph page. Here’s how you do that:
   a. Click the **Main** button, then select **New** then **Graph Page**.

   The **Graph Page** dialog box appears, asking if you’d like to create a graph.

   b. Click **No**.

   A blank graph page appears.

3. In the worksheet, select the two columns of data.
4. Back in the **Graph Gallery**, double-click **Bar Chart with White Grid**.

   Because you already selected the data, it appears selected in the Graph Wizard.
5. Click **Finish** and behold your new graph.
Lesson 2: Error Bars and Multiple Plots and Axes

Before proceeding with this second lesson, it would be helpful if you already know how to:

- Create a graph.
- Stay focused.

Objectives

When you complete this lesson, you’ll know how to do the following:

- Import data from Excel.
- Create and error bar plot.
- Add a second plot to the graph.
- Modify the overlaid plots.
- Change bar widths and alignments.
- Add a second axis.
- Add a table.
- Import other figures.
- Insert clip art.
- Produce a graphic file.

Error Bars and Multiple Plots and Axes

For this lesson, we’re going to create a much more complicated plot using data imported from an Excel spreadsheet.

Import Data from Excel

The spreadsheet we’re going to import is in a location that might not seem immediately obvious, but once found, you will find a treasure chest of files there to play with for your own future personal edification.

1. Close up everything you were working on before, and create a new worksheet. Here’s how:
   a. Click the Notebook Manager tab.
Import Data from Excel

b. Right-click a section, and in the shortcut menu that appears, select **New** and then **Worksheet**.

A new section appears in the Notebook Manager, along with a new worksheet.

2. Place the cursor in the first cell of the worksheet.

3. Click the **Worksheet** tab.
4. In the **Import** group, click **Import File**.

![Image of SigmaPlot interface]

**Attention**

This is where things get tricky because location of this file is dependent upon which version of SigmaPlot you installed, either the 32 or 64–bit. The author of this tutorial has installed the 32–bit version.

5. Go to **Program Files (x86)/SigmaPlot/SPW12**.

6. Double-click **Iris.xsl**.

![Image of file explorer]

The **Import Spreadsheet** dialog box appears.
7. Click **Import**.

The entire contents of the **Iris.xls** spreadsheet appears in the worksheet already formatted for you.
Create the First Bar Chart with Error Bars

1. Select the first three columns of data, *Species*, *Sepal Length*, and *Sepal Width*.
2. Click the **Create Graph** tab.
3. In the **2D Graphs** group, click **Bar** and then click **Grouped Vertical Bar — Error Bars**.
Create the First Bar Chart with Error Bars

The Graph Wizard appears, asking you about error bar settings.

4. Select **By Category, Mean** from the **Symbol values** drop-down list.

5. Click **Next**.

   Since there is only one data format for this type of graph, **Category, Y**, it’s already selected for you.

6. Click **Next**.

   Because you already selected the data, this appears selected already, too.
Tip

Hover the pointer over the Finish button. A Tool Tip appears with a summary of the plot you’re about to create, eliminating the need to click back and forth through the Wizard to remember what you’d just selected.

7. Click Finish.

An bar chart with error bars of the sepal data appears.
Add a Second Plot

Now that you’ve got a bar chart of the sepal data, let’s add another with petal data. Here’s how:

1. Select the graph.
   
   This can be tricky, because you want to select the graph, and not the plot. You can do this by clicking white space within the graph, but the easiest way is to press Ctrl+A to Select all.

2. Right-click and select Add New Plot.

   The Graph Wizard appears with Grouped Vertical Bar Chart already selected.

3. Click Next.
   
   Grouped Error Bars already appears as the graph style.
4. Click Next.
   By Category, Mean appears as the symbol value.

5. Click Next again.
   By now, maybe you can see the pattern that whatever you selected for the first graph appears as the default.

6. When you get to the Add Plot — Select Data panel of the Graph Wizard, select Column 1 (Species) for the category data, Column 4 (Petal Length) for Y1 and Column 5 (Petal Width) for Y2.

7. Click Finish.
   Two grouped bar charts appear on the same page, with one minor little problem: they’re plotted on top of each other.
Modify the Overlaid Plots

This simply won’t do. You’ll have to make some changes.

1. Click the first set of black bars, near the top of the tallest bars. This is the Sepal Length.
2. On the pop up tool bar that appears, click the Paint button.
3. Select the color white from the palette.
   The Sepal Length bars are now white.
4. Try using this pop-up tool bar again to change the Sepal Width to dark gray.
Change Bar Widths and Alignments

1. Double-click the graph. 
   Graph Properties appears.
2. In the Properties list on the left, under Plots, click Bar Widths.
3. Make sure Plot 2 is selected from the Plot drop-down list. You can find this under Current.
4. Make the following changes:
   a. Set the Bar thickness to 100%.
   b. Set the Group spacing to 40%.
   c. Change the Bar alignment to Right.
5. Now select Plot 1 from the Plot drop-down list.

6. Make the same changes as above, but set the Bar alignment to Left.

7. Close Graph Properties and take a look at your graph now.
Add a Second Axis

This graph is starting to make some sense, but the first bar for petal width is hard to distinguish. Let’s add a second axis and see what happens.

1. Click the Graph Page tab.
2. In the Graph Additions group, click Add Axis.

The Graph Wizard — Add Axis dialog box appears.
3. Select **Plot 2** and click **Next**.

4. Select **Y Axis** and click **Next**.

5. Select **Right** and then click **Finish**.
The new Y axis appears, no, it makes no sense. You’ll have to range of the scale for this new axis.

**Change the Axis Scale**

Yes, this new Y-axis scale has to change.

1. Double-click that new Y-axis.
2. If not already selected, select **Scaling** under **Axis** in the **Properties** list.
3. Change the **Start** value to 0 and the **End** value to 6.5.

**Important**

Make sure to press Enter for the changes to appear!

4. Close **Graph Properties** and take a look at your graph.
Before we add more annotations, figures, and other interesting objects to the page, first let’s zoom in on the page.

1. Find the **Zoom Slider**. It’s located in the bottom right corner of the SigmaPlot desktop.
2. Click the Zoom Level button.
3. Select 100% in the Zoom dialog box.

4. Click and drag the graph to the top of the page.

**Add a Table**

1. Click an empty region below the graph.
2. Click the Graph Page tab.
3. In the Insert group click the Insert Object drop-down list.
4. Select **Excel Table**.

   Microsoft Excel launches with an empty sheet.

5. From Excel, open **Report.xls**. It’s in the same directory as Iris.xls (Program Files (x86)/SigmaPlot/SPW12).

   This contains ANOVA results for the iris data, computed using SigmaStat.

6. Copy the data from the Report Excel sheet into the "Worksheet in SigmaPlot Graph Editor" Excel sheet, then close Excel.
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7. Go back to the graph page, and drag and drop the table to a better location.

   **Note**

   You may have to use **Zoom** again to better see the graph page.

8. Resize the table as needed using an outer corner handle.
Produce Graphic Files

Creating graphic files is very easy in SigmaPlot.

Let’s export this graph as a JPEG. JPEG files are viewable from web browsers, and are also compatible across platforms.

1. Click to select the graph.
2. Click the **Home** tab.
3. In the **Export** group, click the **Graph** drop-down list.
4. Select **Export**.

5. Type in a filename, and click **Save**.

   The Export JPEG File dialog box appears. This is where you can configure all the export settings.

6. Try making the following changes:
   a. Set the **Final figure Width** to 4 inches.

      Notice how the **Final figure Height** changes as well to keep the original aspect ratio.

   b. Now change the **Final figure dpi** to **100**.

   c. Since we aren’t using any color, change the **Color depth** to **Gray Scale** to shrink the size of the final file.
7. Click **OK**.

8. To view the file in your Windows Explorer, just find the file and double-click it.
Lesson 3: Curve Fitting

Before starting this section, you should already know how to:
- Import data from an Excel spreadsheet.
- Add a plot to an existing graph.

When you complete this lesson, you’ll know how to do the following:
- Run the Regression Wizard.
- Run a simple curve fit.
- Save the results to a report.
- View the regression results.
- Plot an equation.
- Add drop lines.
- Add reference lines.

Curve Fitting

Use the Regression Wizard

One of the most common needs for the scientific graph is to fit, or curve, to your data. SigmaPlot has more than one hundred fits, and you can also add your own.

1. Create either a new worksheet or new notebook, and import the file Binding.xls found in the SigmaPlot folder.

2. Select all the data columns and create a simple scatter plot with error bars (Simple Scatter – Error Bars).
3. In the Graph Wizard, select \textbf{Row Means} from the \textbf{Symbol} value drop down list.

4. Click \textbf{Finish}.
Tip

The dataset used for this example can also be analyzed using the , which is included with SigmaPlot and available in either the on the or from the Macros dialog box.

Run a Simple Curve Fit

1. Right-click one of the data points and then select Curve Fit.

The Regression Wizard appears. Many equations are available, sorted by category.
2. Scroll through the different equation names in the Equation Category drop-down list to get a feel for the types and numbers of models available.

3. Since this is a standard binding curve, select Hyperbola from the Equation Category drop-down list, and Single Rectangular, 2 Parameter from the Equation Name list (the first equation listed).

**Save the Results to a Report**

1. Click Next, then Next again to view the preliminary results.

The R square value looks good, so we’ll go on to generate a report.

2. Click Next, and verify that Create Report is selected.
3. Click Finish.

**View the Regression Results**

The Regression Wizard places parameter and residual values into the worksheet, plots the fitted curve, and creates a statistical report. Now let's look at the relationship between parameters "a" and "b."

![Regression Results Image]
Plot an Equation

1. Go back to the graph page, right-click the curve, and select **Plot Equation**.

The **Plot Equation** dialog box appears.

2. Click the **Library** tab, select **Single Rectangular, 2 Parameter Hyperbola** model, and click **Select**.

3. Click the **Solve** tab.

4. In the worksheet, right-click the second parameter ("b") value (column 4, row 2) and copy it.
The b parameter is the dissociation constant $K_d$ which should have a $y$ value equal to half the maximum saturation.

5. In the **Plot Equation** dialog box, right-click $x$ text box and paste the parameter value.

6. Click **Evaluate**.
7. Copy the $f$ value.

8. Close the **Plot Equation** dialog box when finished.

9. View the worksheet, and paste the result of the Solver into column 9, into the second row.

10. View the graph page again.

11. Click the graph, and add a simple scatter plot to the graph.

Make sure that you select **XY Pair** as the data format.

12. Select the parameter value in column 4 for your $x$ value.
13. Select the computed y for that value in column 9 as your y value.

![Graph with data points](image)

14. Click **Finish** to add the data point, represented by a single symbol plotted on your graph.

   But you can’t see this new data point, can you? Help is on the way.

**Add Drop Lines**

When you can’t see a data point in a plot, you can add drop lines to it to help you find it. Here’s how.

1. Double-click the graph to open the **Graph Properties** dialog box.
2. Make sure Plot 3 is selected.

![Graph properties dialog box](image)

3. In the **Properties** list, under **Plot** click **Drop Lines**.
4. Select both X and Y directions.

The drop lines for the single data point are drawn, and now you can find the new data point you added.
Add a Reference Line

I am probably going to cut this, unless I can find out whatever happened to Bmax and Kd and what suitable substitutes might be.

Finally, to plot the value of the "a" parameter, we’ll use a reference line. Reference lines are used in SigmaPlot to denote values computed from either statistics or a specified constant.

1. Back on the worksheet, copy the value for the first parameter "a" from column 4, row 1.

2. Then go back to the graph pane, and double-click the graph again to open Graph Properties.

3. In the Properties list, under Plot, click Reference Lines.
The "a" parameter is Bmax, the maximum saturation. The y value corresponding to the "b" parameter (Kd) is half the magnitude of the "a" or Bmax value, as it should be.

4. Select the line currently labeled Upper Specification, then change the Calc for the line to Constant.

5. Paste the value for the "a" parameter into the text box.

6. Change the Label for the line (in the lower right corner) to "Bmax."

7. View the final graph.

For a saturation ligand binding experiment the parameters "a" and "b" are Bmax and Kd, respectively. The Kd value is the concentration of radioactively tagged ligand for which the specific binding (y value) is half the maximum binding (Bmax). The graph shows this to be true – half maximum is about 5.6 and Bmax is about 11.2.
Lesson 4: Working with 3D Graphs

By the end of this lesson, you should know how to do the following:

- Create a 3D bar chart.
- Change axis scales.
- Change the color scheme.
- Change the view.
- Create a mesh plot.
- Plot a 3D function.
- Save the function.
- Create a contour plot.

Working with 3D Graphs

SigmaPlot produces many types of 3D data visualizations.

Enter Data for a 3D Bar Chart

1. Enter the following data so that your worksheet looks exactly like this:

   |   | 1       | 2       | 3       | 4       | 5       | 6       |
---|---|---------|---------|---------|---------|---------|---------|
1  |   | 0.1000  | 1.0000  | 1.0000  | 1.0000  | 5.0000  |
2  |   | 10.0000 | 2.0000  | 3.0000  | 0.5000  | 4.0000  |
3  |   | 50.0000 | 3.0000  | 2.0000  | 3.0000  | 2.0000  |
4  |   | 100.0000| 4.0000  | 0.7500  | 3.0000  |
5  |   | 500.0000| 6.0000  | 2.0000  | 1.0000  |
6  |   |         |         |         |         |         |

   The x data is in column one, the y data is in column 2, and the z values (bar heights) are in columns 3 through 5.

2. Select all the data.
3. Click the Graph tab.
4. In the 3D Graphs group, click 3D Bar Chart to create the graph.
Select Data for a 3D Plot

1. In the Graph Wizard, select the **XY Many Z** data format. This assumes you have a column of x data, y data, and multiple z columns.

2. Click **Finish** when done.

**Note**

If you simply have a table of z values, you can skip using x and y values (the z values are assumed from the cell coordinates). Use x and y data only if the data are either categorical or not equidistant.
Change the Axis to a Log Scale

The X Axis scale needs to be changed to a log scale. To do this:

1. Double-click the axis. **Graph Properties** appears.
2. In the Properties list, under **Axis**, select **Scaling**.
3. Select **Log (natural)** from the **Scale Type** drop-down list.

Change the Color Scheme

Now let’s change the colors of this graph to something a little more dreamy.

1. In the Properties list, under **Plot**, select **Fills**.
2. For a warm rainbow scheme perfect for fall and rainy weather, try **Rainbow (muted)**.
3. Play around with the different schemes under Fill Color and Pattern and Edge.
Lesson 5: Using Worksheet Functions

Prerequisite

Before starting this lesson, you should know how to create a new notebook section with a worksheet.

Objectives

By the end of this lesson, you should be able to do the following:

• Open the Quick Transforms dialog box.
• Use the Functions palette.
• Compute statistics in worksheet cells.

Using Worksheet Functions

What SigmaPlot lacks in-cell functions, it makes up for it with a data transform language that allows quick data manipulation in a dialog box called Quick Transforms.

Open the Quick Transforms Dialog Box

To see how quick transforms work:
1. Create either a new worksheet or new notebook.
2. Press Shift+F10 to open the Quick Transforms dialog box and the Functions palette.
Use the Functions Palette

1. In the worksheet, click the title area of column 1. The text "col(1)" appears in the left side edit box on the Quick Transform dialog box.

2. Click the right side of the equation. The Functions palette becomes active.

3. Click the "gaussian" button in the Functions palette.

Note
A Tool Tip tells you what the arguments are for the function.

4. Type the number 10000 to replace the highlighted question mark, then click Run.
10,000 random gaussian-distributed points are placed into column 1.

Compute Statistics in Cells

Quick Transforms can also compute values over a range in a cell.

1.

2. Click New Equation.
3. Click the left side of the equation again.
4. In the worksheet, select **Column 2**.
5. Click the right side of the equation.
6. Click the "data" button in the **Functions** palette.

7. Type 1 and 10 for the missing arguments.
8. Click **Run** to place data incrementing from 1 to 10 by 1 into column 2.

9. Click **New Equation**.

10. Click the left side of the quick transform again.

11. Click the cell below "10" in columns 2. The text "cell(2,11)" appears in the left side of the equation.
12. Click the right side of the equation and click the "total" function, then highlight rows 1-10 in column 2.

13. Click **Run** to display the sum of rows 1-10 in column 2 in the selected cell.
Lesson 6: Using Macros and the Toolbox

Prerequisite
Before starting this lesson, you should be able to create a standard scatter plot.

Objectives
By the end of this lesson, you should be able to do the following.
• Record a macro
• Save a recorded macro.
• Change macro options.
• Use the Toolbox.
• Paste to a PowerPoint slide.

Using Macros and the Toolbox

One of the more useful and advanced features of SigmaPlot is the macro language, which uses a system called "automation." This is the same interface used by Visual Basic for Applications (VBA) that is found in Microsoft Office and many other applications. Many types of operations can be recorded and played back.

Record Macros
Let’s record a simple macro.
1. First, create a new blank worksheet.
2. Click the Toolbox tab.
3. In the Macros group, click Record New Macro.
The **Macros** group becomes the **Controls** group, with Stop and Pause buttons. Recording toolbar appears with pause and stop buttons.

4. Create a new notebook.
5. Type some data into columns 1 and 2, and make an XY scatter plot.
6. When finished, click the **Stop Recording** on the **Controls** group.
7. When asked if you want to save the macro, click **Yes**.

The **Macros Options** dialog box appears.

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**Save a Recorded Macro**

1. In the **Macros Options** dialog box, type a name for the macro in the **Name** edit box.
2. **If you want to create a button for the macro**, under **Assign to**, select **Button name**. Then type the name of the button as you would like it to appear.

3. Select which group you would like the macro to appear on the **Toolbox** tab, either **Tools** or **Pharmacology**.

4. Click **OK**.

5. No go look on the **ToolBox** tab, and find your new macro! You can create many much more useful macros than this one, though.

**Change Macro Options**

If you want to remove the macro from the ribbons, but not delete it entirely, here is what you do.
1. Press alt+F8 to open the **Macros** dialog box.

![Macro List]

2. The the macro that you recorded.

![Selected Macro]

3. Click **Options**.
4. In the Macro Options dialog box, under Assign to, clear Button name.

5. Click OK.

6. The macro is no longer visible on the ToolBox.

**Paste to a PowerPoint Slide**

There are many sample macros included with SigmaPlot. The most useful of these are displayed by default in the ToolBox tab in Tools, Pharmacology, and Add-Ins groups.

The Paste to PowerPoint slide macro takes advantage of the ability of SigmaPlot to use automation to manipulate PowerPoint. To use this macro:

1. Create a blank slide in Power Point.
2. Set the color of the slide to a dark blue color.
3. Back in SigmaPlot, select one of those totally awesome graphs that you created earlier.
Note
If you want to paste more than just the graph, you also need to select other objects you want to paste into the PowerPoint slide.

4. Click the Toolbox tab.
5. In the Tools group, click Paste to PowerPoint Slide.

The Insert Graph into PowerPoint macro dialog box appears, in which you can set various options. These are designed to work with most PowerPoint settings.
6. Select all the options.

7. Click **OK**. Your graph is copied, reformatted for PowerPoint, and then the reformatted graph is automatically placed on the current PowerPoint slide.
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