Chapter 156

Error-Bar Charts from Summary Data

Introduction

Error-Bar Charts graphically display tables of means (or medians) and variability. Following are examples of the types of charts produced by this procedure. The bars (or symbols) and error-bar lines may represent any user-entered center and variability values. Both symmetric and asymmetric error bars may be entered.
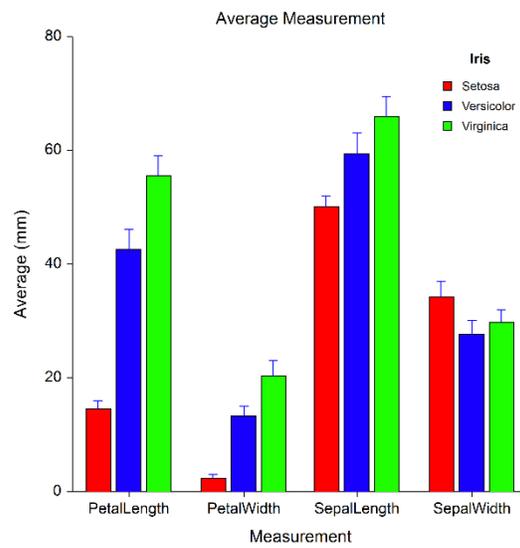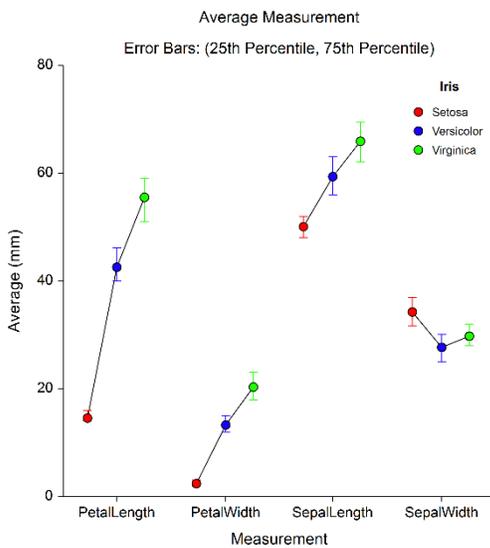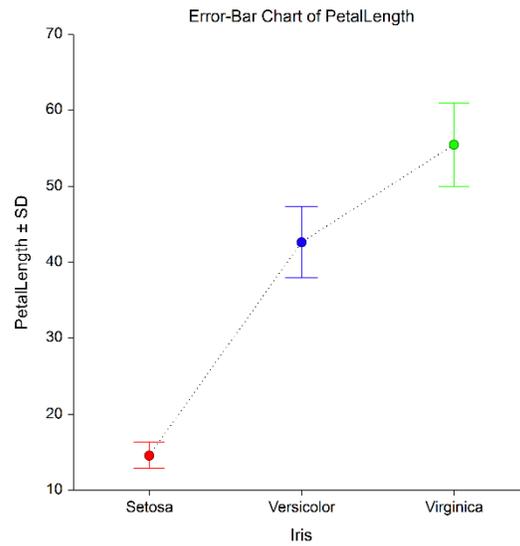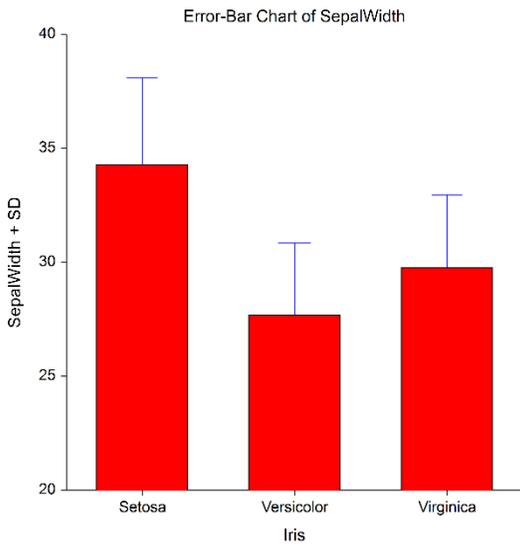
Data Structure

This procedure accepts data in two different input formats. Both data formats involve a single column of numeric data values. The difference is due to the way that the error is entered. You may enter either a single column containing error values, called *delta*, (e.g. standard deviation, standard error, etc.), which results in symmetric error bars, or you may enter the upper and lower error bounds for each point directly, which allows for asymmetric error bars. Rows with missing data values are ignored. Rows with missing error values are plotted, but error bars for the corresponding points are not drawn.

A second variable may be used to divide the data variable into groups (e.g., age group or gender). In the two-factor procedure, a third variable may be used to divide the groups into subgroups.

Error-Bar Chart Window Options

This section describes the specific options available on the Error-Bar Chart window, which is displayed when the Error-Bar Chart button is clicked. Common options, such as axes, labels, legends, and titles are documented in the Graphics Components chapter.

## Error-Bar Chart Tab

Bars and Symbols Section

You can modify the color of bars, border, and/or symbols using the options in this section.

One Factor
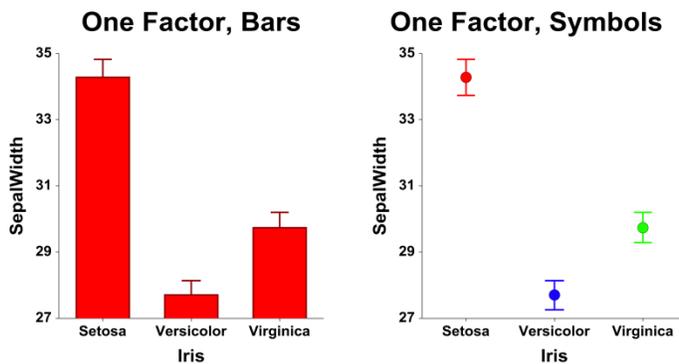
Two Factors

Two Factors, Bars

Two Factors, Symbols
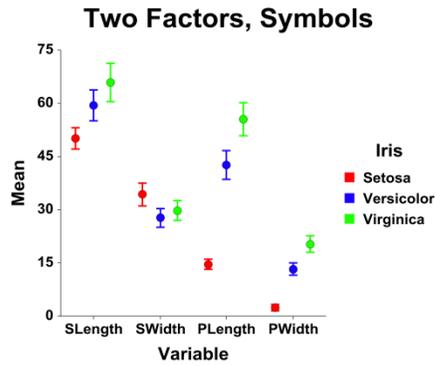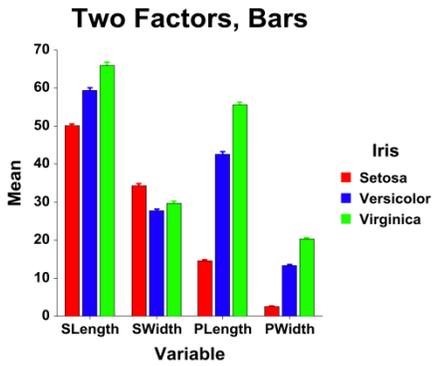
Variation (Error Bars) Section

You modify the variation line that extends from the mean using the options in this section.

No Crossbars

Up and Down
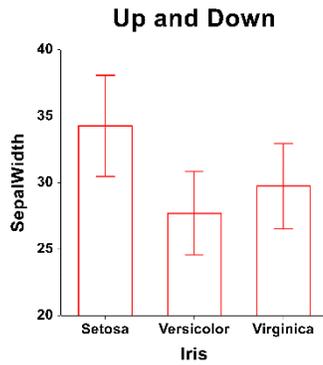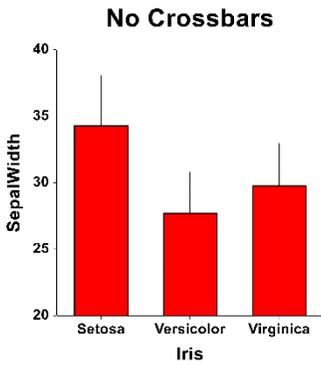
Layout Tab

Orientation Section

You can orient the bars horizontally or vertically.

Vertical

Horizontal
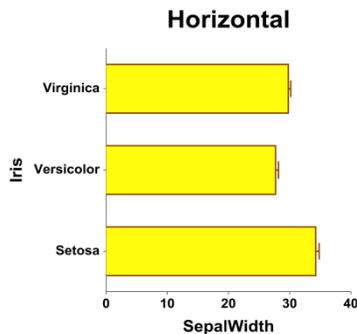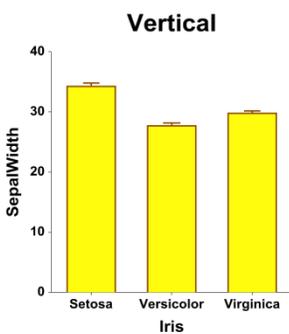
Object Spacing and Size Section

You can change the size of the gap between individual bars.
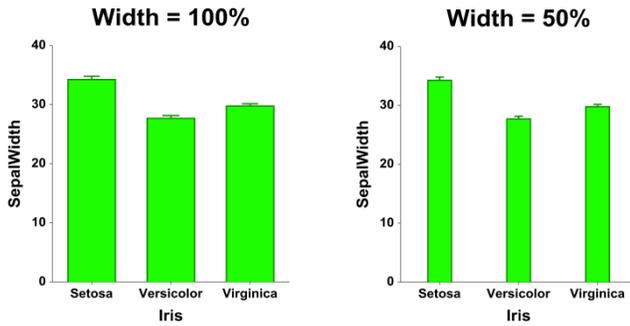
Connecting Lines Tab

Connect Between Groups Section

You can add reference lines at group means and percentiles.
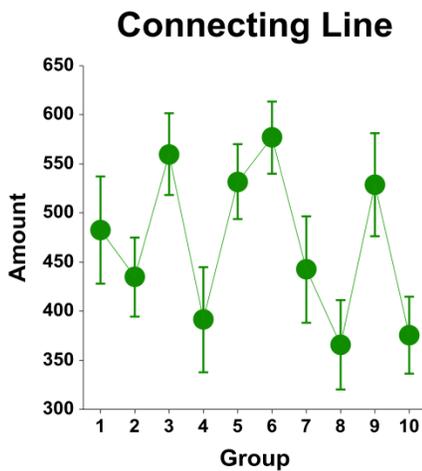
Titles, Legend, Numeric Axis, Group Axis, Grid Lines, and Background Tabs

Details on setting the options in these tabs are given in the Graphics Components chapter.

# Example 1 – Creating Error-Bar Charts from Summary Data by Entering Delta

This section presents an example of how to generate an error-bar chart from summary data. The data used are from the *FisherSummary* dataset. We will create separate error-bar charts for the variable called *Average* for each Measurement type, grouping each chart on the type of iris.

Setup

To run this example, complete the following steps:

1   Open the FisherSummary example dataset
- From the File menu of the NCSS Data window, select **Open Example Data**.
- Select **FisherSummary** and click **OK**.

2   Specify the Error-Bar Charts from Summary Data procedure options
- Find and open the **Error-Bar Charts from Summary Data** procedure using the menus or the Procedure Navigator.
- The settings for this example are listed below and are stored in the **Example 1** settings file. To load these settings to the procedure window, click **Open Example Settings File** in the Help Center or File menu.

Variables Tab

Data Variable ....**Average**

Error Input Type...**Enter Error as Δ (Error Bounds = Center ± Δ)**

Error (Δ) Variable ....**SD**

Horizontal (Group) Variable ....**Iris**

Breaks Tab

Break Variable 1 ....**Measurement**

Report Options (*in the Toolbar*)

Variable Labels...**Column Labels**
Data Labels...**Value Labels**

3   Run the procedure
- Click the **Run** button to perform the calculations and generate the output.

Error-Bar Chart Output with Bars

Error-Bar Charts
_____
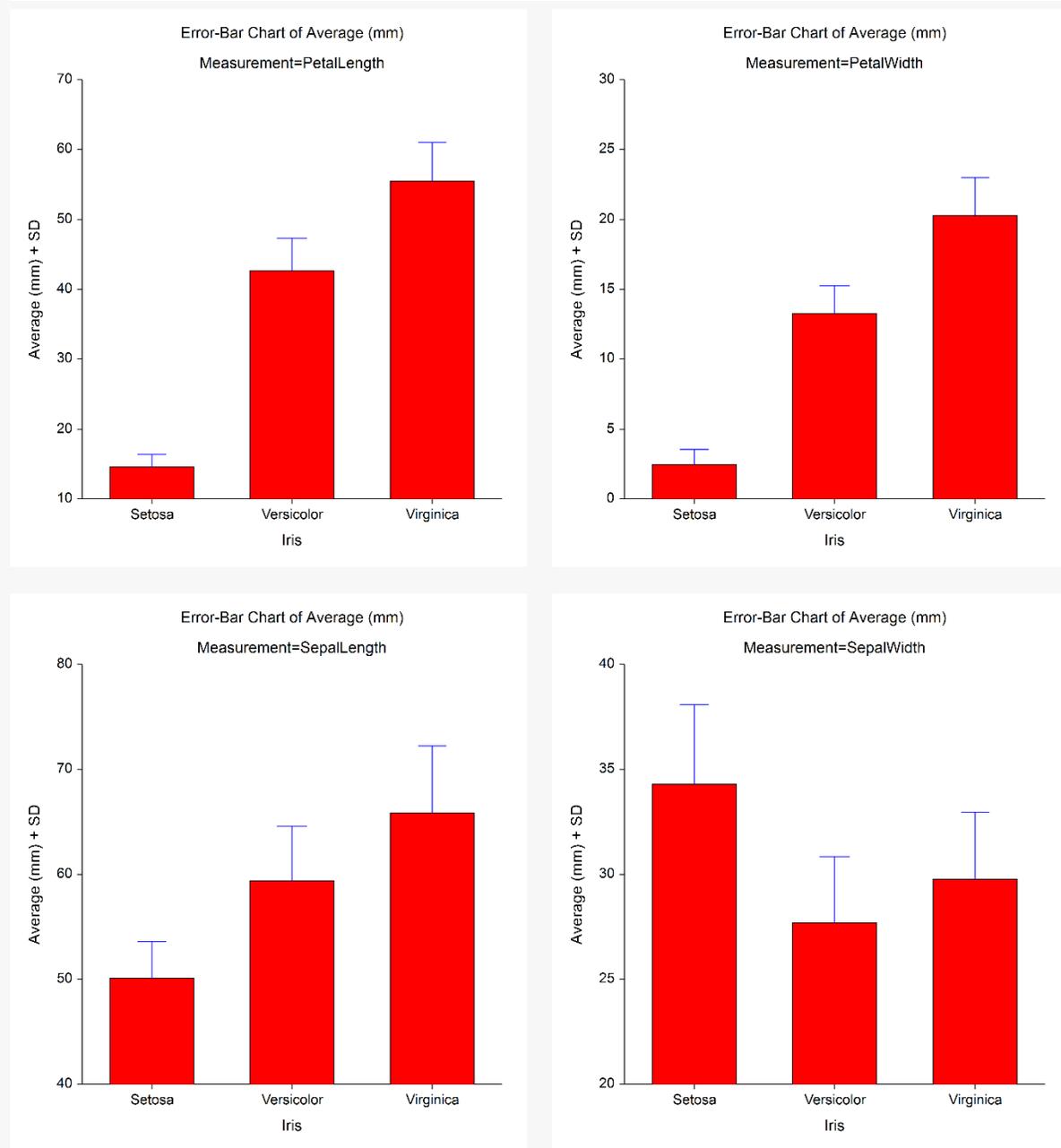
Four different plots are created corresponding to each measurement type.

Error-Bar Chart Output with Symbols

You can plot the same information with symbols and connecting lines by clicking on the plot format button, unchecking the bar fill and bar border, adding the symbols, and adding connecting lines (see **Example 1b** settings file).

Error-Bar Charts
_____
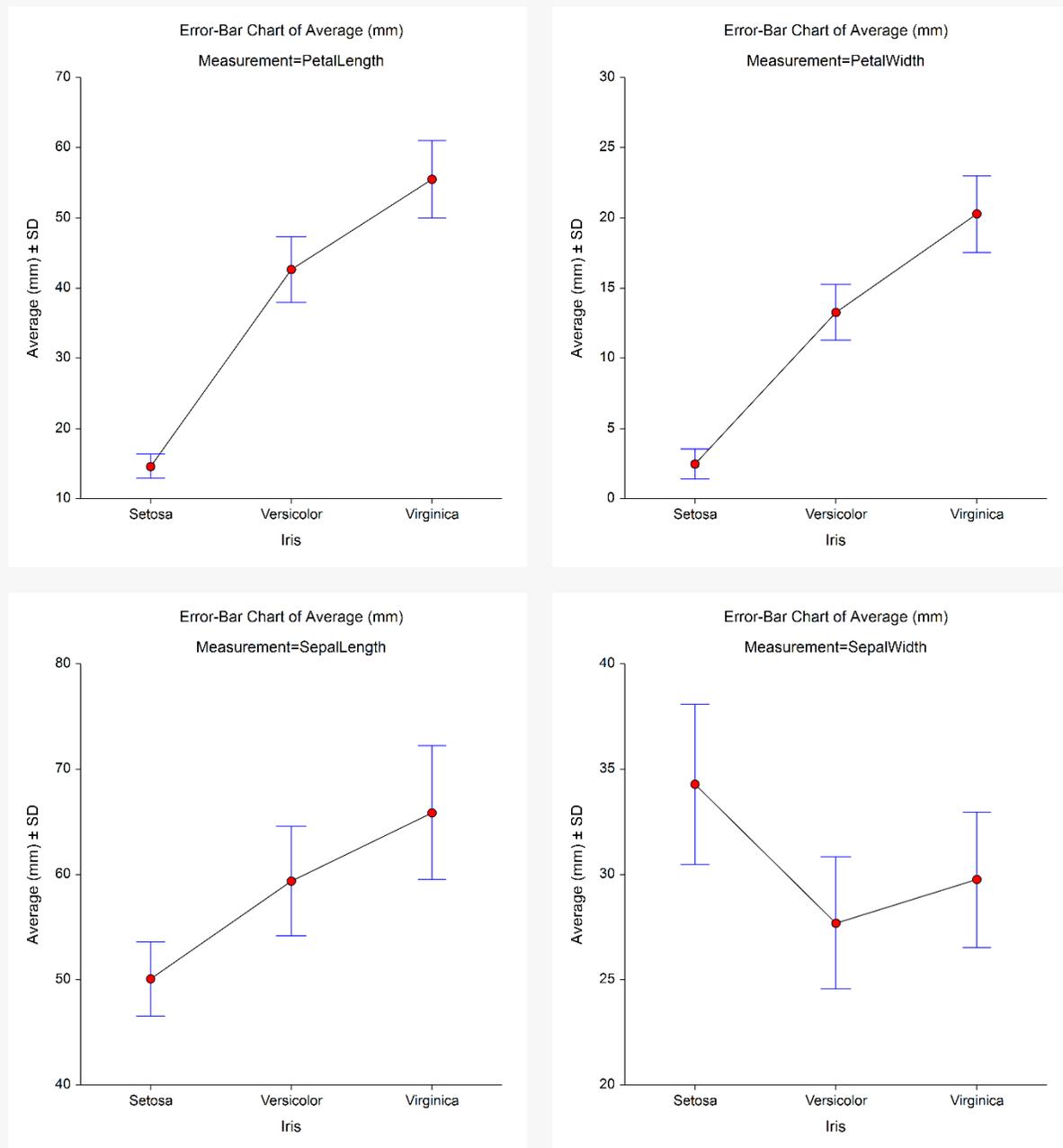
Four different plots are created corresponding to each measurement type with symbols instead of bars.

Example 2 – Creating an Error-Bar Chart with Subgroups from Summary Data by Entering Upper and Lower Error Bounds

This example demonstrates how to generate an error-bar chart with subgroups from summary data. The data used are from the *FisherSummary* dataset. We will create one error-bar charts for the variable called *Average* with upper and lower error bounds entered separately. The error bounds correspond to the 75th and 25th percentiles, respectively.

Setup

To run this example, complete the following steps:

1 Open the FisherSummary example dataset

- From the File menu of the NCSS Data window, select **Open Example Data**.
- Select **FisherSummary** and click **OK**.

2 Specify the Error-Bar Charts from Summary Data procedure options

- Find and open the **Error-Bar Charts from Summary Data** procedure using the menus or the Procedure Navigator.
- The settings for this example are listed below and are stored in the **Example 2** settings file. To load these settings to the procedure window, click **Open Example Settings File** in the Help Center or File menu.

Variables Tab

Data Variable ....**Average**
Error Input Type...**Enter Upper and Lower Error Bounds Separately**
Lower Error Bound Variable **P25**
Upper Error Bound Variable **P75**
Horizontal (Group) Variable ....**Measurement**
Legend (Subgroup) Variable............................**Iris**

Report Options (*in the Toolbar*)

Variable Labels..**Column Labels**
Data Labels..**Value Labels**

3 Run the procedure

- Click the **Run** button to perform the calculations and generate the output.

Error-Bar Chart Output

Error-Bar Charts
_____
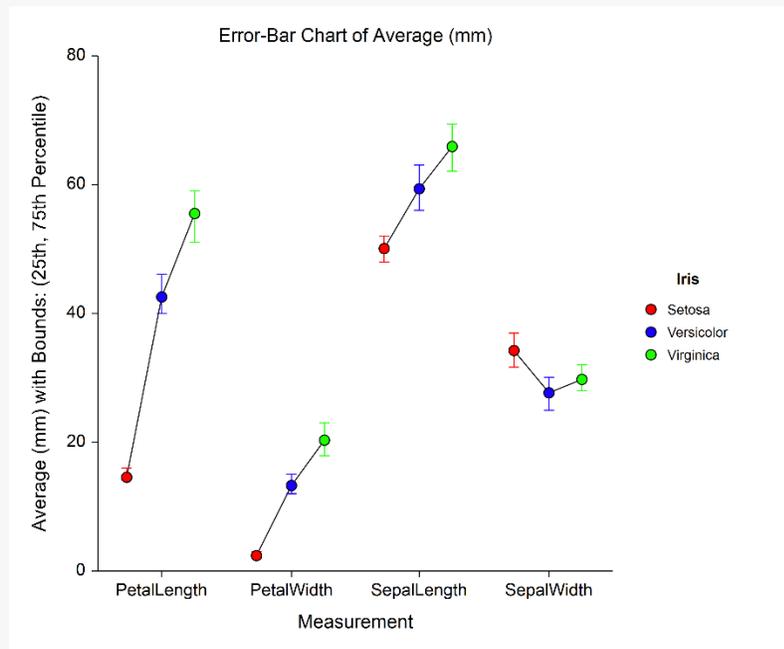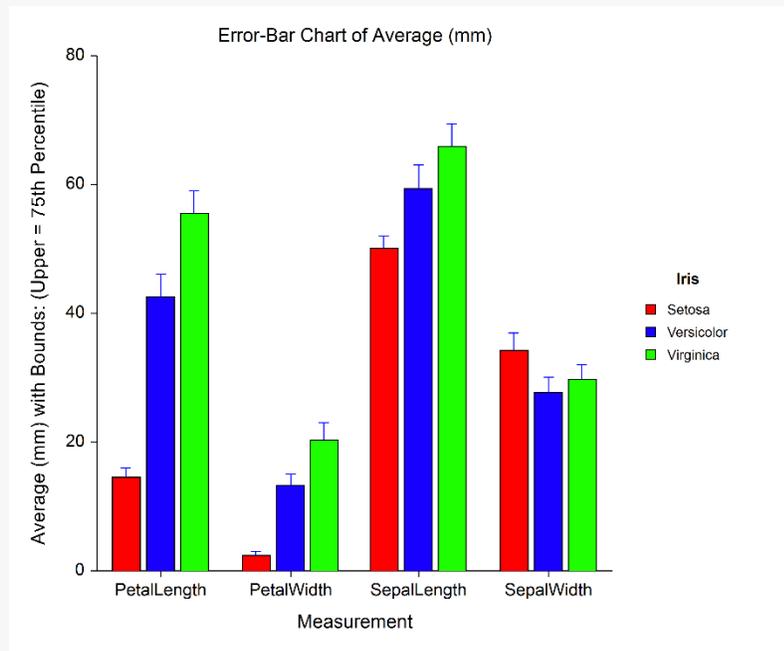
The second plot is the same data with the bar fill and bar border removed and symbols and connecting lines added (see **Example 2b** settings file). In the second plot the error bar lines are also made to be the same color as the symbol.

You can also include connecting lines between groups as in the following plot (see **Example 2c** settings file).

Error-Bar Charts
_____