

INTRODUCTION

A wise man once said:

“A motivated SAS/GRAPH programmer can create just about any graph.”

In this book, I teach you the tools to become that programmer!

Purpose of This Book

In 2012, I wrote the book *SAS/GRAPH: Beyond the Basics*. It describes tricky coding techniques you can use to create several specific highly customized graphs. Many novice SAS users asked me how they could learn the basics and work their way up to those advanced techniques, so I wrote a prequel *SAS/GRAPH: The Basics*, and now I build on those basics with ... *SAS/GRAPH: Intermediate Tricks (a Handbook for the Wizard's Apprentice)*.

Target Audience

The target audience for this book is a user who is comfortable with the SAS/GRAPH basics, and wants to learn how to customize their graphs, using tricks other than the trivial options.

The Approach

I have written a separate chapter for each category of customization. For each example, I go through several iterations, and show both the SAS code and the output for each iteration. I start with a simple un-customized graph, and then add then iteratively add more tricks to get to the final graph. Below each graph is some **red text** that describes the main thing the graph is demonstrating.

I denote what I consider *good* graphs with a large ‘check,’ And I occasionally include an extra credit graph that goes slightly beyond the scope of a beginner book, and denote it with a ‘check +’. In a few instances I show *bad* graphs (for demonstration purposes only), and mark them with a large ‘x’ so you will know what to avoid.



In addition to the checkmarks and x-marks, I occasionally include commentary related to the concept in general. I indent and shade the background gray, and prefix the text with “**Let’s Talk.**” Below is an example of my commentary text:

Let’s Talk: This is an example of my commentary text. If you are just wanting to learn how to create the graphs, then you can ignore such text. But if you would like to become a true expert, and learn more about the ‘Zen’ of creating such graphs, I encourage you to pay special attention to them.

Running the Sample Code

For each iteration of each example, I include **all** the code needed to create the graph you see, rather than only showing the code added in that iteration. This makes it easy to copy-n-paste one single block of code to reproduce each graph.

Some of the examples use data from the SASHELP library (which ships with SAS), and in others I include code at the beginning of the example that you will need to run to create the dataset.

I would recommend that you run the sample code in the **SAS Display Management System (DMS)** – this is what you typically use when you install SAS on your PC, and run SAS from the Start-menu or desktop icon. Alternatively, you could submit the code via Enterprise Guide (EG), batch SAS, interactive line-mode SAS, SAS/Intrnet, Stored Processes, or maybe even the new WebONE interface (which is like using DMS through a web browser).

In order to keep the code short, I do not include any resets, but if you are running several examples back-to-back, then some of the settings from a prior graph might affect the next graph. To avoid that, you could either run “goptions reset=all;” or exit out of the SAS session and start a fresh SAS session (I prefer the latter).

I use a different color and font for the `code` (purple courier) so you can easily distinguish it from the text paragraphs. I also use bold and underline on the parts of the code that are especially important to that particular iteration of the example. Don’t worry that the color & bold/underline do not copy-n-paste to the SAS editor – it’s just in the book for your convenience, and is not important to the SAS editor. Below is an example of code like you will see in the examples:

```
title1 "Student Analysis";  
proc gplot data=sashelp.class;  
plot height*weight;  
run;
```

Software Used

You will of course need a **SAS/GRAPH** license to run the examples in this book! The examples are specifically targeted towards users with **SAS 9.3** or higher, but most of the samples should work in older versions of SAS as well.

Additional Resources

Here is a list of additional resources you might find useful in learning SAS/GRAPH. At this point (learning the basics), the online reference manual will probably be the most useful resource. In the future, after you become comfortable with the basics, hopefully my *Beyond the Basics* book will become your new favorite!

SAS/GRAPH 9.3 Reference
Tech Support Examples
Robert Allison's Examples
SAS/GRAPH Essentials training course
Producing Maps with SAS/GRAPH training course
SAS/GRAPH Software: Examples, Version 6
Maps Made Easy Using SAS
SAS Global Forum proceedings
SAS/GRAPH Question & Answer Forum
SAS/GRAPH: Beyond the Basics

Comments or Questions

This document is not an official SAS book, and has not gone through the SAS Publishing review & editing process. Therefore there might be a few errors or items that need clarification. If you find any of these, or have any suggestions, feel free to let me know in an email. Since this document is distributed online, rather than in print, I plan to make updates and additions as-needed!

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