

## Computer Software Reviews

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**Sigmaplot. Version 3.0.** Jandal Scientific: 2656 Bridgeway, Sausalito, CA 94965.

Sigmaplot, a scientific graphing program, is a flexible, relatively easy to use program, which allows the creation of professional-looking graphs from many sorts of data. The program will make copies of finished graphs on Hewlett-Packard series 7400 and 7500 and IBM 7300 plotters, as well as on several common dot-matrix printers. It also supports use of such optional pointing devices as a digitizing tablet or mouse. The printer copies are satisfactory for publication, and the plotter output can be of very high quality indeed. As an added attraction, the program can produce "plots" which contain no data or axes, only labels, therefore acting as a text slide maker.

The program requires an IBM PC, XT, or AT compatible computer with at least 512K of memory, and two disk drives, one of which may be a hard drive. It also requires a color graphics adapter, or an EGA or Hercules type graphics card. It seems to work with several printers which follow the Epson protocols, as well as the IBM Proprinter, the HP Thinkjet and Laserjet, and others. Installation, while fairly complicated, is handled easily by a disk program called INSTALL, which inquires about your particular hardware setup, and copies the needed programs and drivers to your working disks. The program is not copy protected, but the license agreement limits copies to backups only. A problem arose with the initial use of the program on a monochrome monitor, operating with a color graphics board, a fairly common setup. The graphics were displayed nicely, but the data entry screens, intended to be shown on colored backgrounds, were unreadable in monochrome. The entry of a simple command, SET MONITOR=MONO, before the Sigmaplot program was loaded, solved the problem, but it took a call to the friendly help line (an 800 number) to find this out. There was no mention of it in the manual.

While the program is not at all hard to use, the same cannot be said of the manual. If you are willing to spend the time going step-by-step through the examples and tutorial supplied, the program would be easily learned. However, many of us tend to use such a program to do a particular job and have little patience with going through someone else's data to learn a program. Of course, the reference part of the manual is arranged in alphabetical order by commands, so if you do not know which command to use, you cannot easily find it.

Actually, with the on-screen helps and the menus which appear at each step, a graph can be rapidly constructed, with only occasional reference to the manual. The data are entered into a spreadsheet, or can be readily imported from ASCII files generated from other spreadsheet, database, or wordprocessing programs. Data are displayed on the screen either with three decimal places or in exponential notation if necessary. However, the truncated digits are not lost, as a linear transform of the data shows. Useful functions for selection of certain parts of a data set, linear transforms, averaging, and rearrangement of data columns are provided. Many "plots" (data sets) can be placed on a single "graph" (set of axes), and several graphs can be placed on a page. The placement and sizing of the graphs on the page is readily done by pushing the graph around on the screen with the cursor keys or a pointing device, if you have one. Labels are placed and sized in a similar manner and can be printed in three different type fonts. An array of Greek letters, math symbols, and large brackets is also available, and, since the cursor can be moved one pixel at a time, writing mathematical or chemical formulae with sub- or superscripts is easy.

Graphs can be done on linear or log axes, and the user has complete control over the range of each axis, as well as the spacing of tick marks. A multi-axis graph, with different *y* axes on opposite sides, for example, can be easily done by superimposing two graphs on the page.

The program will fit curves to the data, as specified by the user, using linear or polynomial regression or a cubic spline algorithm. The "plot statistics" menu choice then will give the coefficients of the line generated. Error bars can be generated by the program, if replicate determinations are entered in separate columns, and averages of these data columns are plotted. Alternatively, error ranges can be entered by the user. Ten different symbols and seven line types are available, and the size of symbols can be varied from mere points to larger than anyone would be likely to use. Multiple bar charts, while less often used for display of chemical data, are also available.

In summation, the deficiencies in the manual are minor, since the program is easy to use. The program is designed for the scientist and so is more likely to provide a chemist with the desired graph than many packages which are more business oriented. It is very forgiving of mistakes, warning when data might be lost or when they should be saved. In one case, I had a lockup which required rebooting the computer. When I reloaded the program I was pleasantly surprised to find my data still intact in a temporary work file. If one picture is worth a thousand words, what is the value of a program that presents data in such nice pictures, and with ease?

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**MacΣqn. Version 2.02.** Software for Recognition Technologies: 55 Academy Drive, Rochester, NY 14623. List price \$44.95; educational discounted price \$30.00.

MacΣqn is a Macintosh desk accessory that allows the creation of technical equations from within a word processing application such as Microsoft Word. An equation is created in the MacΣqn window and pasted into a document, where it appears as a MacDraw-like object.

The basics of MacΣqn can be quickly mastered by working through the Quick Tutorial included in the documentation booklet. MacΣqn provides templates for mathematical "constructs", such as integrals, summations, fractions, roots, and super- and subscripts. To include a construct in an equation, the construct is selected (either from the pull-down menu or keyboard equivalent) and parameters are entered from the keyboard when the cursor appears at the appropriate position. Size and position are automatic. For example, selecting "integral" causes an increased-sized integral sign to appear on the screen. The cursor will then be positioned for entering the lower limit and then the upper limit, which appear appropriately positioned and in smaller type.

Constructs may be nested—e.g., a super-superscript within a fraction. MacΣqn also provides automatic sizing of brackets or parentheses surrounding constructs.

The default settings (size, font, style) of MacΣqn produce very nice looking equations, which output well on either the LaserWriter or the ImageWriter. The default settings may be overridden by the user.

Editing or correction is accomplished by pasting the equation back into a MacΣqn window and making changes. Any character may be changed, as may the font and style of any character or group of characters. In the current version, additional text may be inserted into the "base line" text of the equation but not into a construct, and backspacing may produce unexpected results. These shortcomings will be alleviated in Version 2.1, which is to be released in the near future. Presently, the shortcomings may be overcome by creative use of a feature that allows characters to be moved one pixel at a time in any direction; this feature also permits very precise control of positioning.

MacΣqn is a rather large desk accessory (~23K bytes) and requires a 512K or larger Macintosh.

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