InStat, Version 2.0 for DOS[1]

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The need for statistical analysis is nearly universal in scientific laboratories. The documentation for InStat states that it was designed for use by scientists with limited interest or background in statistical theory. In operation, it is extremely straightforward to use. For the PC version, the install program expands the compressed files from the single floppy disk into the directory chosen by the user on the hard drive. After installation, the program and related files use slightly less than 1 MB of space. It can also be run as a DOS program under Windows, with the advantage that data can be transferred to the Windows clipboard. The program is menu-driven, with a straightforward series of menus giving ready access to all of its capabilities. Data entry utilizes a spreadsheet-format screen and can be in integer, decimal, or exponential format. The input screen used depends on the analysis planned, including six options for analysis of raw data, statistical comparison of means and standard deviations or standard errors, contingency table analysis, or x,y regression or correlation. Data can also be imported from standard ASCII files, making it straightforward to transfer from most spreadsheet programs. The data table can accommodate up to 500 rows and 26 columns of data, quite adequate for most small-scale analyses. Data can be readily transposed or transformed via 17 functions, including logarithmic, exponential, trigonometric, and logit functions.

Group comparisons include a variety of t tests, ordinary or repeated measurements, one-way ANOVA tests, and a variety of post tests, F or Bartlett's test for equality of standard deviations, and calculation of standard group statistics, including 95% confidence intervals. Contingency analysis includes χ^2, Fisher's and McNemar's paired χ^2 tests, and calculation of 95% confidence intervals for the relative risk, odds ratio, or difference between two proportions. Linear regression and correlation analysis include calculation of slope and intercept with 95% confidence intervals, forcing the intercept through a specified point, calculation of the Spearman or Pearson correlation coefficients and their confidence intervals, and testing for departure from linearity with both runs and F tests for linearity.

Display capabilities are limited but include bar graphs of group means with SD or SEM displayed and scatterplots of regression lines with 95% confidence intervals. Both data and plots can be printed on supported printers that have graphics capabilities. The printer option menu lists 49 choices, including PostScript, with most of the popular printers listed. The plots are satisfactory as working plots but are not publication quality.

The ease of use leads to some limitations. The documentation states that InStat was designed to analyze relatively small data sets and is not able to select subsets from larger files or cross-tabulate data to form a contingency table. It also cannot perform such advanced analyses as survival curve analyses, multiple regressions, logistic regression, and two-way ANOVA, polynomial, or nonlinear regressions. (The companion program, InPlot, was stated to be able to perform polynomial and nonlinear regressions but was not available for this review.)

Usage of the program was quite straightforward. Following installation, all of the features were easily accessed through the menu without recourse to the manual. The help screens are context sensitive, providing both information on the operation at hand and additional theoretical background where appropriate. For example, in testing the equivalence of two sets of data, the help screens provide advice on the type of test to use and the circumstances appropriate for one- and two-sided p values.

The documentation is simple but quite adequate. The first section includes a tutorial, followed by chapters on the various analysis procedures. A brief exposition of the principles of statistics and interpreting the results of the various analyses is also included.

Within the limitations noted above, the program appears to be excellent. It should be quite useful for routine statistical analysis of data obtained from a variety of experimental designs, and for designing statistically valid experiments. It should also be useful for teaching, allowing the instructor to concentrate on statistical methodology, rather than on the details of how to get the computers and software to analyze the problems given to the students.

InStat for the PC requires DOS version 3.0 or later and approximately 470K of RAM. It will use 600K of EMS memory, if available, and a disk cache is recommended. It will run on an 8088 or higher processor, and requires a graphics adapter for plot displays. It was tested on both a 25-MHz 80486 with 8MB memory and an 8-MHz 8086 laptop with 1 MB of memory and operated satisfactorily on both. It is also available for the Macintosh. List price for single copies is $95, with 10% educational institution and 25% student discounts available. Larger multiple copy and network discounts are available.

REFERENCES AND NOTES

(1) GraphPad Software, 10855 Sorrento Valley Rd., #203, San Diego, CA 92121.