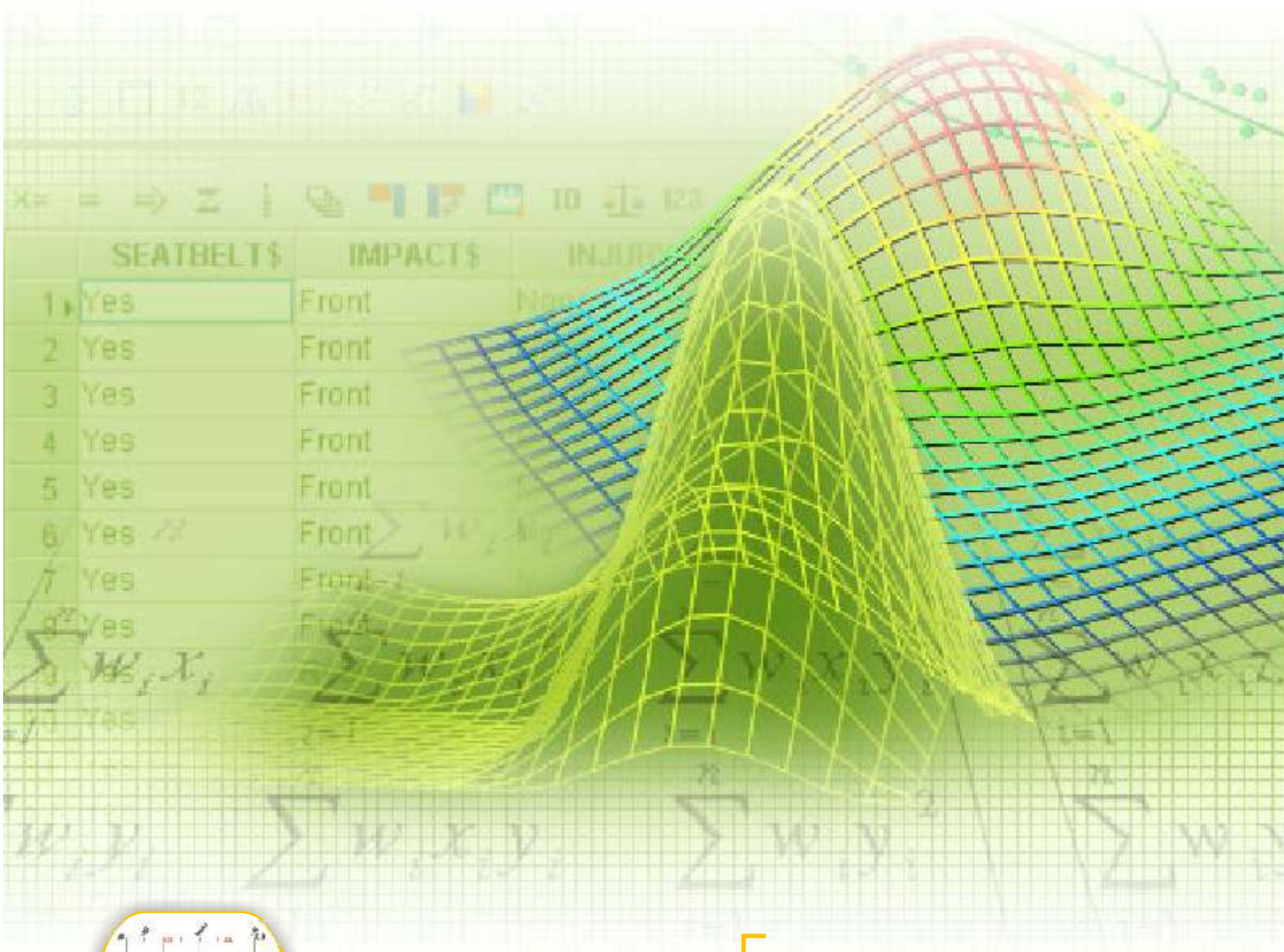
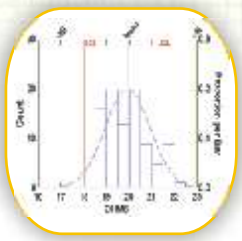
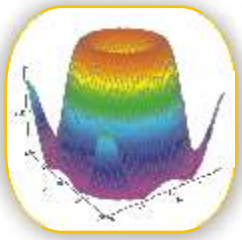
SYSTAT® 11

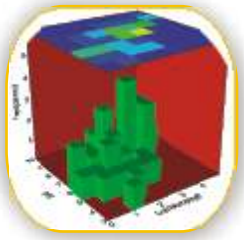
For Windows®





- More Statistics...
- More Graphs...
- Less Effort.





SYSTAT®

SYSTAT delivers over 20 years of experience in statistical algorithms written by leading statisticians. Whether you are looking for an all-in-one tool, or an advanced addition to your statistical library you'll never have to worry about finding the right statistic or perfect graphic for the specific needs of your research.

SYSTAT offers many graph types and options for a desktop statistics package. Create insightful presentations with advanced chart types such as maps, multiplots and kernel densities. Speed up your analysis with SYSTAT's interactive graphic tools. Simply point-and-click to perfect your graph's appearance.

Had enough of difficult programming languages or elaborate interface designs? SYSTAT's intuitive Windows® interface and flexible command language are designed to make your research more efficient. Quickly locate advanced options through clear, comprehensive dialogs. Fly through your analysis with interactive commands. Instantly visualize your results with SYSTAT's QuickGraphs.

Achieve New Levels of Analytical Power and Efficiency

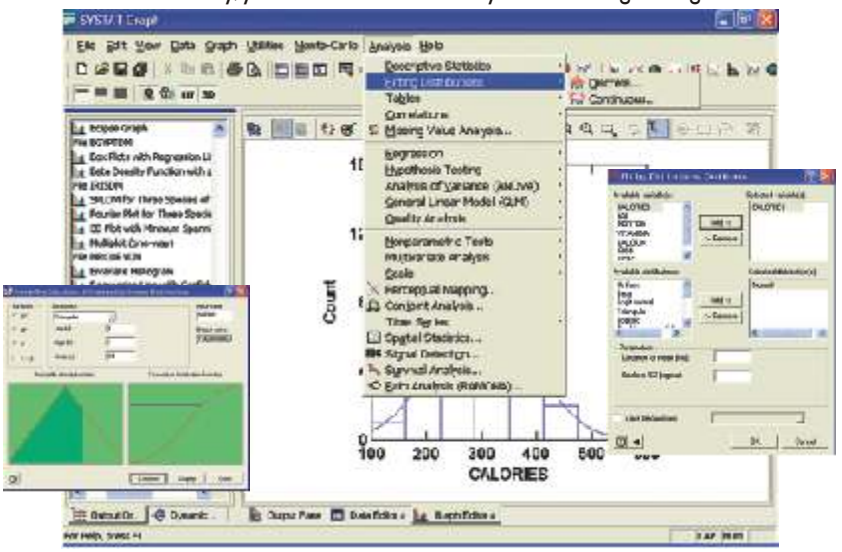
SYSTAT 11 extends its range and depth of statistical procedures by including new Monte Carlo methods, new regression models, 20 new fitting distributions and enhanced analysis tools. With SYSTAT's extensive statistical library, you'll never have to worry about finding the right statistic for the specific needs of your research data.

New Monte Carlo Algorithms!

SYSTAT 11 now provides more Random Sampling, IID Monte Carlo, and Markov chain Monte Carlo algorithms to generate random samples from many standard distributions, not-so-standard distributions, and indirectly specified distributions. Accomplish your simulation tasks and get help for your intractable Bayesian problems from SYSTAT 11.

More Regression Techniques!

SYSTAT's regression suite has been enhanced to provide more Robust Regression techniques, which can be used when you have messy data with outliers, etc. The additions are: Bayesian Regression, Least Median of Squares (LMS) Regression, and three new weight functions (Ramsay, Andrews, and Tukey) in M-Regression.

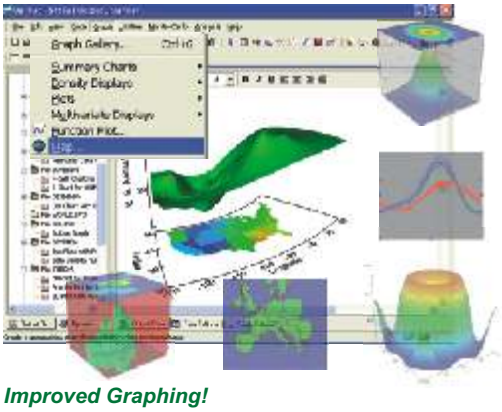


20 New Fitting Distributions!

SYSTAT's suite of 13 discrete and continuous distributions has been expanded to 33 discrete and continuous, univariate and multivariate distributions giving you a better chance of finding the right distribution to fit your data.

Enhanced Analysis Tools!

More standard charts and tools are available for quality analysis including Gauge R&R, Taguchi's On-Line SPC and Signal-to-Noise Ratio Analysis of Taguchi Loss Function. The new menu-driven multivariate analyses enable users to complete Hotelling's T^2 and other tests for mean vectors, covariance and correlation matrices with ease.



Improved Graphing!

SYSTAT provides advanced chart types that allow statisticians to create unique graphs that bring out the true meaning in your data.

Improved Graphing & Visualization Capabilities

SYSTAT has always offered more high quality scientific and technical graphs than any other desktop statistical package. SYSTAT 11 introduces a new Interactive Graph Editor, improved visualization capabilities and it now makes use of Microsoft's 16M color palette for cleaner, smoother on-screen graph display.

New Interactive Graph Editor:

- Allows for more graph elements to be modified with fewer key strokes
- Easier graph customization without editing code or regenerating the graph
- Better visualization capability with easier control of zooming, rotating and moving of graphs.
- New added graph export file formats: GIF, TIFF & PS

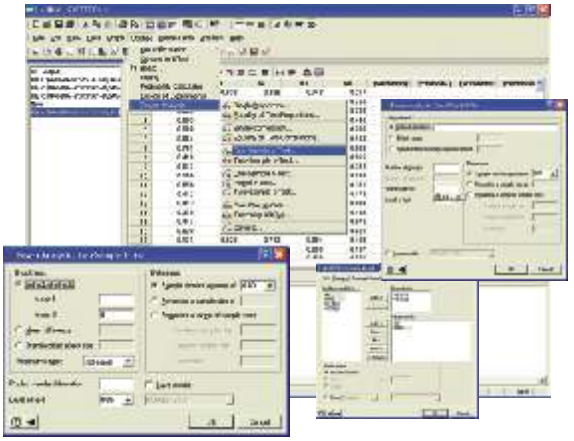
* Actual performance may vary depending on data size, function used, and system specifications.

Easier To Use & Faster Than Ever

SYSTAT 11 processes on average 30% faster than the previous version* and improved menu-driven organization of related functions streamlines standard statistical workflow processes - making your research analysis quicker and more efficient.

Redesigned Windows Interface!

Many previous command line functions are now menu driven, Main Menus and Right-Mouse-Button Menus are fully customizable, and improved user controls including more drag-and drop and right click functions all translate to faster task execution.

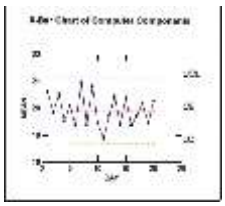


The newly enhanced user interface has been further simplified, making SYSTAT 11 even easier to use.

Get Your Technical Questions Answered Immediately!

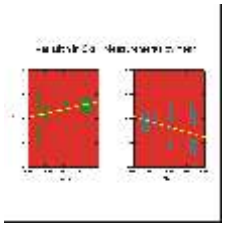
Learn new or advanced procedures quickly with SYSTAT's significantly enhanced, more accessible online HTML and context-sensitive Help system and extensive use of tool tips. Or learn SYSTAT offline with an updated volume set of 7 printed manuals containing nearly 3,400 pages and well over 500 examples with real-life data.

SYSTAT supports all types of scientific & technical research



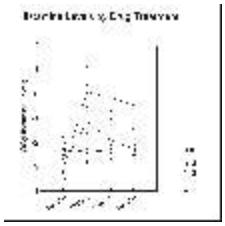
Manufacturing: quality improvement
SYSTAT helps keep track of your manufacturing process. Here, an X-bar QuickGraph shows the average resistance of five randomly selected computer components measured over twenty production days. The X-bar chart shows the components well within control limits.

Epidemiology: tuberculosis incidence
SYSTAT lets you combine geographic and statistical data to create insightful maps. This plot uses color coding to highlight high incidence rates of tuberculosis across Europe.

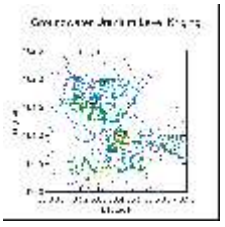


Archeology: evolution of skull dimensions
SYSTAT's MANOVA procedure found significant variation between time periods in these measurements of male Egyptian skulls. The multivariate results are corroborated by the univariate ANOVA depicted here in these combined regression/box plots.

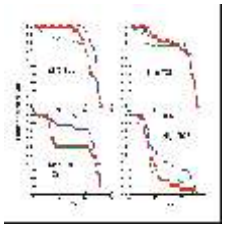
Psychology: instructional methods and learning
Analysis of Covariance (ANCOVA) was necessary to adjust for the effect of basic aptitude in this experiment comparing the effectiveness of two different instructional methods.



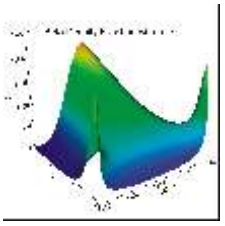
Medical Research: clinical trials
Repeated measures Analysis of Variance (ANOVA) was used here to investigate the effects of four different drug treatments on blood histamine levels in dogs.



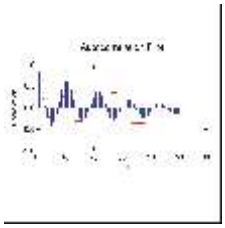
Geology: estimation of Uranium reserves from groundwater Potential Uranium reserves are modeled using SYSTAT's spatial statistics Kriging estimator. This Krig contour overlaid with actual Uranium levels indicates that the largest concentration is located in the area near longitude:101; latitude: 33.4.



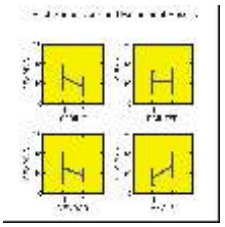
Environmental Science: TCE contamination
These survival plots show the effect of four levels of TCE contamination on Vallisneria Americana. The plots clearly show that higher levels of TCE reduce the survival rate across all genders.



Statistics: theoretical distributions
Compare theory to experiment with SYSTAT's built-in statistical functions, such as this beta density. SYSTAT offers density, cumulative, and inverse functions for 28 distributions, fitting of 25 distributions and random sampling from 33 distributions.



Astronomy: sunspot cycles
Get a quick glance at your data before performing in-depth research. This autocorrelation function QuickGraph shows the cyclical patterns displayed by sunspots. The peaks crossing above the confidence bands indicate significant correlation over time.



Mechanical Engineering: robust product design
Mechanical Engineering: robust product design SYSTAT quickly summarizes the results of designed experiments. This four-factor, two-level factorial design was conducted to investigate the accuracy of a fuel gauge during product development. SYSTAT automatically created the side-by-side display of these four charts.

* Actual performance may vary depending on data size, function used, and system specifications.

SYSTAT 11
New Features and Enhancements

Improved User Interface & User Controls
- Redesigned user interface combines the Output, Data and Graph Editor windows into a single tabbed window.
- Extensive use of drag-n-drop and right click mouse functionality.

Faster Processing Speed
- SYSTAT 11 processes on average 30% faster than the previous version.
*Actual performance may vary depending on data size, functions used, and system specifications.

Improved Graphics Quality
- Now makes use of Microsoft's 24-bit true color that enables display of over 16M possible colors. - The fill routine has also been replaced to ensure smoother fills for surface & mosaic plots.

Customizable Main Menus and Right Mouse Button Menus
- Customize the Main Menu to keep only the items that you want
- Customize most of the Right Mouse Button Menus also
- Option to reset to Default

New Import Data Formats
- Import new data formats like StatView, Stata, Statistica, JMP, Minitab and S-Plus.
Example Command Files:
Exploit the online (in SYSTAT 11/Command directory) availablity of over 500 command files of examples from the SYSTAT Manuals to simplify the task of writing commands for similar data analysis problems.

Easier Graph Customization and Other Graphing Improvements : New interactive Graph Editor:
- Displays each individual element name (e.g. Line Plot, Histogram, X-axis Legend etc.) on moving the mouse over the editor
- Interactive aesthetic change (Line style, Fill Style Font & Color) of each element while editing by right clicking
- Editing text by double-clicking the text elements
- Interactive changing of coordinate system
- Interactive axis settings and showing or hiding of grid lines
- Different formats for legends and changing the formats from graph editor
- Changing Axis variable to produce another graph from the graph editor
- Automatic and Mouse Interactive animation for three dimensional graphs
- New added graph export file formats: GIF, TIFF & PS
- A whole new Zoom In & Out feature with selection Zoom and Step Zoom and moving in the graph by holding and dragging the graph using mouse
- Newly added Annotation Objects: Poly Line and Arrow
- Setting error bar parameters from graph editor

New Regression Techniques

Bayesian Regression:
- The prior distribution for the regression parameters used in this feature is the (multivariate) normal-gamma distribution. - The parameters of the posterior distribution are provided along with plots of prior and posterior densities of the regression coefficients.
Robust Regression:
- M-regression with 3 new weight functions: Ramsay, Andrews, Tukey
- Least Median of Squares (LMS) regression

Probability Distributions:
Random Sampling, Graphs, Fitting, Goodness-of-fit for many more distributions. - SYSTAT now has 33 discrete and continuous, univariate and multivariate distributions.
New distributions include:

Discrete
- Uniform
- Zipf
- Geometric
- Hypergeometric
- Negative Binomial

Continuous
- Triangular
- Double exponential (Laplace)
- Cauchy
- Gumbel
- Gompertz
- Lognormal
- Pareto
- Rayleigh
- Inverse Gaussian
- Logit normal

Multivariate
- Multinomial
- Bivariate exponential
- Dirichlet
- Multivariate normal
- Wishart
- Mersenne-Twister is a new powerful random number generator. (The older Wichmann-Hill random number generator is still available in the Global Options menu.)
- Random sampling from 33 distributions
- Density, cumulative distribution and inverse cumulative distribution function computation for 28 univariate distributions - Graphs for the density and cumulative distribution functions of the 21 continuous univariate distributions
- 25 univariate distributions fitted to data and goodness-of-fit statistics computed
- Kolmogorov-Smirnov tests goodness of fit for many distributions
-Shapiro-Wilk normality test.

These built-in distributions are centrally available to a number of other functions:
- Graphs where you can visually compare your actual distribution with the theoretical distribution.
- Monte Carlo simulations using random sampling.

Probability Calculator
Previously available as a command line item, this is now a menu-driven dialog box. - New Dynamic dialog, many new distributions and graphs provided.

Multivariate Analysis
Previously part of the ANOVA and GLM menu, MANOVA for standard problems, is now its own menu item. Within-group and Between-group testing is now part of menus (previously command line).
- Many older functions are reorganized into this new menu selection

- MANOVA
- Factor Analysis
- Discriminant Analysis:
  - Linear and quadratic discriminants
  - (NEW) Linear & quadratic robust discriminants
- Cluster Analysis
- Classification Trees
- Multidimensional Scaling
- Correspondence Analysis

Matrix Computations
Previously accessible from the command line, these are now menu-driven.

Monte Carlo Methods
- SYSTAT provides Random Sampling, IID MC, and MCMC algorithms to generate random samples from standard, non-standard and indirectly specified target distributions.
- Random Sampling in SYSTAT enables the user to draw a number of samples each of the same size from a distribution chosen from a list of 33 distributions (discrete and continuous, univariate and multivariate) with given parameters.
- IID Monte Carlo consists of two generic algorithms, viz., Rejection Sampling and Adaptive Rejection Sampling (ARS).
- SYSTAT provides two classes of Markov Chain Monte Carlo (MCMC) algorithms: Metropolis-Hastings (M-H) algorithm and the Gibbs sampling algorithm.

Quality Analysis
Added to SYSTAT's basic quality analysis tools and charts are:
- More control charts like XMR
- Gauge R&R
- Sigma measurements
- Run (AT&T) tests on control charts - Taguchi's On-Line SPC
- Signal-to-Noise Ratio Analysis of Taguchi Loss Function

Hypothesis Testing
Reorganized into one menu item. New tests have been added:
- Means (some new tests added)
- Variances
- Proportions
- Correlations

Power Analysis
Now reorganized with additional features:
- Conforms to the Hypothesis tests on means and their various options
- Useful in planning your experiments and surveys
- Previously, power analysis only for two-sided alternatives. Now includes one-sided alternatives.

Software Help
- New online HTML and context-sensitive Help. - Dialog box items have new, interactive "What's This" Help descriptions. - Many existing dialog boxes have been reorganized so that additional settings are tabs instead of additional dialog boxes. - All dialog box input fields show range value in the tool tips. - Extensive use of tool tips. - Limited parameter entries dialog boxes now come with multiple entries that can be added or deleted by the user.

Customer Quotes

"Our lab studies human performance in space and in virtual simulated environments as a way to explore the way the nervous system works and what its limitations are. SYSTAT is elegant, easy to use and offers options that are intuitively laid out so that you can get sophisticated analysis and not have to spend a lifetime doing it."

-Alan Natapoff (20-year user of SYSTAT)
Research Scientist, The Man-Vehicle Laboratory
MIT Center for Space Research

"My research is primarily in psychology and public health. I use Systat software for all the statistical analysis and database management. The ease-of-use of the graphics helps make it painless to look at the data. Ease-of-use does not imply a lack of sophistication."

-Robert T. Brennan
Research Associate in Social Medicine
Harvard University, School of Medicine

"SYSTAT software is one of the most powerful statistical analysis packages available today. The software's capabilities, such as hypothesis testing and multivariate analyses, are critical components that facilitate my research and contribute to understanding the results."

-Ty Vaughn, Research Scientist
Monsanto Company

"I teach at Drexel and Villanova Universities as an adjunct Associate Professor mainly in the graduate programs. Typically, the Universities are committed to use SPSS which has limited capabilities. I have found useful to demonstrate more advanced techniques using SYSTAT or SAS. However, SAS is usually too complex for demonstration purposes."

-Gene Lieb
Scientist
JM USDA NHRC on Aging at Tufts

"I use SYSTAT in teaching quantitative methods in graduate classes and doing research focusing of prehistoric Indians of the Southwest. Systat has the flexibility of data handling, strong graphics, and the range of procedures to accomplish a very broad range of analyses that archaeologists need to do."

-Keith W. Kintigh, Professor of Anthropology
Arizona State University

"I work in higher education and survey research. SYSTAT is my primary data analysis software for processing and analyzing these surveys. I use SPSS to backup and supplement SYSTAT, but generally find that I can analyze the data more rapidly and creatively with SYSTAT. Although my students are running SPSS, I often take examples generated by SYSTAT into the classroom, so that my students can see an alternative output format."

-Carl Desportes Bowman
Dept. Chair and Professor of Sociology, Bridgewater College
Director of Survey Research, Institute for Advanced Studies of Culture
University of Virginia

"I am enormously impressed by what SYSTAT Software Inc. has accomplished in this new version. The documentation has been completely revised and updated and the interface has been improved to make SYSTAT faster and easier to use, but no less powerful. Most importantly, SYSTAT Software Inc. has added significant new statistical modules. The statistical sophistication of these new modules reflects the leadership of Professor Thriyambakam Krishnan, as well as a team of Ph.D. and M.S. statisticians that is larger than the one we had working on the original SYSTAT. Having an internationally recognized statistician guiding future development of SYSTAT gives me confidence. I use SYSTAT every day for my own research and I am upgrading to Version 11."

-Leland Wilkinson, Ph.D.
Sr. VP, SPSS Inc.
Author, Version 1 and founder of Systat Inc.

About SYSTAT Software :

Headquartered in Richmond, California, Systat Software is a leading developer of specialized scientific software products for data analysis, technical graphing and presentation. Its products are extensively used for research, analysis and presentation in the areas of environment sciences, life sciences, behavioral sciences, medical research and engineering.

Systat Software's global reach across 37 countries is backed by technical support centers in key geographies such as the US, UK, Germany and India. The Company's research and development centre comprises original product authors, highly qualified developers, domain experts and algorithm specialists.

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