

NEW and UPDATED APPLICATIONS for GAUSS



New Applications

- **AD 1.0
(Algorithmic
Derivatives)**
- **Descriptive
Statistics MT 1.0**

Update

- **Descriptive
Statistics 4.0**

Requirements:

Requires GAUSS
Mathematical and Statistical
System (GAUSS)
Version 6.0 or the GAUSS
Engine 6.0.

Platforms:

Available for Windows,
LINUX and UNIX.

AD 1.0 (Algorithmic Derivatives)

The GAUSS AD 1.0 module is an application program for generating GAUSS procedures for computing algorithmic derivatives.

A major achievement of AD is improved accuracy for optimization. Numerical derivatives invariably produce a loss of precision. The loss of precision is greater for standard errors than it is for estimates. At the default tolerance, Constrained Maximum Likelihood (CML) and Maximum Likelihood (Maxlik) can be expected generally to have four or five places of accuracy, whereas standard errors will have about two places. Accuracy essentially doubles with AD. AD works independently

of any application to improve derivatives, and it can be used with any application that uses derivatives.

For some types of optimization problems, convergence is accelerated. Iterations are faster and fewer of them are needed to achieve convergence. The types of problems that will see the most improvement are those with a large amount of computation.

CML 2.0.6+ and Maxlik 5.0.7+ have been updated to improve speed with AD.

Descriptive Statistics MT 1.0 and Descriptive Statistics 4.0

The procedures in both Descriptive Statistics MT 1.0 and Descriptive Statistics 4.0 provide basic statistics for the variables in GAUSS data sets. These statistics describe and test univariate and multivariate features of the data and provide information for further analysis. Descriptive Statistics MT 1.0 is a new product that is thread-safe and takes advantage of structures, while Descriptive Statistics 4.0 is an update that is backwards compatible with programs written with Descriptive Statistics 3.1.

- Includes methods for analyzing and generating, contingency tables and statistics for them.
- Includes new routines to compute descriptive statistics, including both univariate and multivariate skew and kurtosis.
- Includes support for variable names of up to 32 characters.
- Includes support for date variables where applicable.
- You can now choose between two report types—all variables in a single table or individual reports for each variable—and you can choose which statistics to include in the report and the order in which they appear.

Descriptive Statistics MT 1.0 and Descriptive Statistics 4.0 have methods for analyzing and generating contingency tables and producing statistics for them:

- Chi-Squared (Pearson and Likelihood Ratio)
- Phi
- Cramer's V
- Spearman's Rho
- Goodman-Kruskal's Gamma
- Kendall's Tau-B
- Stuart's Tau-C
- Somer's D
- Lamda

Both also have methods for generating frequency distributions with statistics, skew and kurtosis, and tests for differences of means.

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