NAG Library Chapter Contents

G01 – Simple Calculations on Statistical Data

G01 Chapter Introduction

Routine Name	Mark of Introduction	Purpose
G01AAF	4	nagf_stat_withdraw_summary_1var Mean, variance, skewness, kurtosis, etc., one variable, from raw data **Note**: this routine is scheduled for withdrawal at Mark 26, see Advice on Replacement Calls for Withdrawn/Superseded Routines for further information.
G01ABF	4	nagf_stat_summary_2var Means, corrected sums of squares and cross-products, etc., two variables, from raw data
G01ADF	4	nagf_stat_summary_freq Mean, variance, skewness, kurtosis, etc., one variable, from frequency table
G01AEF	4	nagf_stat_frequency_table Frequency table from raw data
G01AFF	4	nagf_stat_contingency_table Two-way contingency table analysis, with χ^2/Fisher's exact test
G01AGF	8	nagf_stat_plot_scatter_2var Lineprinter scatterplot of two variables
G01AHF	8	nagf_stat_plot_scatter_normal Lineprinter scatterplot of one variable against Normal scores
G01AJF	10	nagf_stat_plot_histogram Lineprinter histogram of one variable
G01ALF	14	nagf_stat_5pt_summary Computes a five-point summary (median, hinges and extremes)
G01AMF	22	nagf_stat_quantiles Find quantiles of an unordered vector, real numbers
G01ANF	23	nagf_stat_quantiles_stream_fixed Calculates approximate quantiles from a data stream of known size
G01APF	23	nagf_stat_quantiles_stream_arbitrary Calculates approximate quantiles from a data stream of unknown size
G01ARF	14	nagf_stat_plot_stem_leaf Constructs a stem and leaf plot
G01ASF	14	nagf_stat_plot_box_whisker Constructs a box and whisker plot
G01ATF	24	nagf_stat_summary_onevar Computes univariate summary information: mean, variance, skewness, kurtosis
G01AUF	24	nagf_stat_summary_onevar_combine Combines multiple sets of summary information, for use after G01ATF

G01BJF	13	nagf_stat_prob_binomial Binomial distribution function
G01BKF	13	nagf_stat_prob_poisson Poisson distribution function
G01BLF	13	nagf_stat_prob_hypergeom Hypergeometric distribution function
G01DAF	8	nagf_stat_normal_scores_exact Normal scores, accurate values
G01DBF	12	nagf_stat_normal_scores_approx Normal scores, approximate values
G01DCF	12	nagf_stat_normal_scores_var Normal scores, approximate variance-covariance matrix
G01DDF	12	nagf_stat_test_shapiro_wilk Shapiro and Wilk's W test for Normality
G01DHF	15	nagf_stat_ranks_and_scores Ranks, Normal scores, approximate Normal scores or exponential (Savage) scores
G01EAF	15	nagf_stat_prob_normal Computes probabilities for the standard Normal distribution
G01EBF	14	nagf_stat_prob_students_t Computes probabilities for Student's t-distribution
G01ECF	14	nagf_stat_prob_chisq Computes probabilities for χ^2 distribution
G01EDF	14	nagf_stat_prob_f Computes probabilities for F-distribution
G01EEF	14	nagf_stat_prob_beta Computes upper and lower tail probabilities and probability density function for the beta distribution
G01EFF	14	nagf_stat_prob_gamma Computes probabilities for the gamma distribution
G01EMF	15	nagf_stat_prob_studentized_range Computes probability for the Studentized range statistic
G01EPF	15	nagf_stat_prob_durbin_watson Computes bounds for the significance of a Durbin–Watson statistic
G01ERF	16	nagf_stat_prob_vonmises Computes probability for von Mises distribution
G01ETF	21	nagf_stat_prob_landau Landau distribution function
G01EUF	21	nagf_stat_prob_vavilov Vavilov distribution function
G01EYF	14	nagf_stat_prob_kolmogorov1 Computes probabilities for the one-sample Kolmogorov–Smirnov distribution
G01EZF	14	nagf_stat_prob_kolmogorov2 Computes probabilities for the two-sample Kolmogorov–Smirnov distribution
G01FAF	15	nagf_stat_inv_cdf_normal Computes deviates for the standard Normal distribution

G01FBF	14	nagf_stat_inv_cdf_students_t Computes deviates for Student's t-distribution
G01FCF	14	nagf_stat_inv_cdf_chisq Computes deviates for the χ^2 distribution
G01FDF	14	nagf_stat_inv_cdf_f Computes deviates for the F-distribution
G01FEF	14	nagf_stat_inv_cdf_beta Computes deviates for the beta distribution
G01FFF	14	nagf_stat_inv_cdf_gamma Computes deviates for the gamma distribution
G01FMF	15	nagf_stat_inv_cdf_studentized_range Computes deviates for the Studentized range statistic
G01FTF	21	nagf_stat_inv_cdf_landau Landau inverse function $\Psi(x)$
G01GBF	14	nagf_stat_prob_students_t_noncentral Computes probabilities for the non-central Student's t-distribution
G01GCF	14	nagf_stat_prob_chisq_noncentral Computes probabilities for the non-central χ^2 distribution
G01GDF	14	nagf_stat_prob_f_noncentral Computes probabilities for the non-central F-distribution
G01GEF	14	nagf_stat_prob_beta_noncentral Computes probabilities for the non-central beta distribution
G01HAF	14	nagf_stat_prob_bivariate_normal Computes probability for the bivariate Normal distribution
G01HBF	15	nagf_stat_prob_multi_normal Computes probabilities for the multivariate Normal distribution
G01HCF	23	nagf_stat_prob_bivariate_students_t Computes probabilities for the bivariate Student's t-distribution
G01HDF	24	nagf_multi_students_t Computes the probability for the multivariate Student's t-distribution
G01JCF	14	nagf_stat_prob_chisq_noncentral_lincomb Computes probability for a positive linear combination of χ^2 variables
G01JDF	15	nagf_stat_prob_chisq_lincomb Computes lower tail probability for a linear combination of (central) χ^2 variables
G01KAF	23	nagf_stat_pdf_normal Calculates the value for the probability density function of the Normal distribution at a chosen point
G01KFF	23	nagf_stat_pdf_gamma Calculates the value for the probability density function of the gamma distribution at a chosen point
G01KKF	24	nagf_stat_pdf_gamma_vector Computes a vector of values for the probability density function of the gamma distribution
G01KQF	24	nagf_stat_pdf_normal_vector Computes a vector of values for the probability density function of the Normal distribution

G01LBF	24	nagf_stat_pdf_multi_normal_vector
		Computes a vector of values for the probability density function of the multivariate Normal distribution
G01MBF	15	nagf_stat_mills_ratio
		Computes reciprocal of Mills' Ratio
G01MTF	21	nagf_stat_pdf_landau
		Landau density function $\phi(\lambda)$
G01MUF	21	nagf_stat_pdf_vavilov
		Vavilov density function $\phi_V(\lambda; \kappa, \beta^2)$
G01NAF	16	nagf_stat_moments_quad_form
		Cumulants and moments of quadratic forms in Normal variables
G01NBF	16	nagf_stat_moments_ratio_quad_forms
		Moments of ratios of quadratic forms in Normal variables, and related statistics
G01PTF	21	nagf_stat_pdf_landau_moment1
		Landau first moment function $\Phi_1(x)$
G01QTF	21	nagf_stat_pdf_landau_moment2
		Landau second moment function $\Phi_2(x)$
G01RTF	21	nagf_stat_pdf_landau_deriv
		Landau derivative function $\phi'(\lambda)$
G01SAF	24	nagf_stat_prob_normal_vector
		Computes a vector of probabilities for the standard Normal distribution
G01SBF	24	nagf_stat_prob_students_t_vector
		Computes a vector of probabilities for the Student's t-distribution
G01SCF	24	nagf_stat_prob_chisq_vector
		Computes a vector of probabilities for χ^2 distribution
G01SDF	24	nagf_stat_prob_f_vector
		Computes a vector of probabilities for F-distribution
G01SEF	24	nagf_stat_prob_beta_vector
		Computes a vector of probabilities for the beta distribution
G01SFF	24	nagf_stat_prob_gamma_vector
		Computes a vector of probabilities for the gamma distribution
G01SJF	24	nagf_stat_prob_binomial_vector
		Computes a vector of probabilities for the binomial distribution
G01SKF	24	nagf_stat_prob_poisson_vector
		Computes a vector of probabilities for the Poisson distribution
G01SLF	24	nagf_stat_prob_hypergeom_vector
		Computes a vector of probabilities for the hypergeometric distribution
G01TAF	24	nagf_stat_inv_cdf_normal_vector
		Computes a vector of deviates for the standard Normal distribution
G01TBF	24	nagf_stat_inv_cdf_students_t_vector
		Computes a vector of deviates for Student's t-distribution
G01TCF	24	nagf_stat_inv_cdf_chisq_vector
		Computes a vector of deviates for χ^2 distribution
G01TDF	24	nagf_stat_inv_cdf_f_vector
		Computes a vector of deviates for F-distribution