

Statistics

Introduction

This is the statistics extension. It contains few dozens of functions useful for statistical computations. It is a wrapper around 2 scientific libraries, namely DCDFLIB (Library of C routines for Cumulative Distributions Functions, Inverses, and Other parameters) by B. Brown & J. Lavato and RANDLIB by Barry Brown, James Lavato & Kathy Russell. Includes CD and PD functions.

Installing/Configuring

Requirements

No external libraries are needed. The extension comes bundled with the libraries used.

Installation

This [» PECL](#) extension is not bundled with PHP.

Information for installing this PECL extension may be found in the manual chapter titled [Installation of PECL extensions](#). Additional information such as new releases, downloads, source files, maintainer information, and a CHANGELOG, can be located here: [» http://pecl.php.net/package/stats](#).

The DLL for this PECL extension may be downloaded from either the [» PHP Downloads](#) page or from [» http://pecl4win.php.net/](#)

Runtime Configuration

This extension has no configuration directives defined in *php.ini*.

Resource Types

This extension has no resource types defined.

Predefined Constants

This extension has no constants defined.

Statistic Functions

stats_absolute_deviation

stats_absolute_deviation -- Returns the absolute deviation of an array of values

Description

float **stats_absolute_deviation** (array \$a)

Warning
This function is currently not documented; only its argument list is available.

Parameters

a

Return Values

stats_cdf_beta

stats_cdf_beta -- CDF function for BETA Distribution. Calculates any one parameter of the beta distribution given values for the others.

Description

float **stats_cdf_beta** (float \$par1, float \$par2, float \$par3, int \$which)

Method Cumulative distribution function (P) is calculated directly by code associated with the following reference. DiDinato, A. R. and Morris, A. H. Algorithm 708: Significant Digit Computation of the Incomplete Beta Function Ratios. ACM Trans. Math. Softw. 18 (1993), 360-373. Computation of other parameters involve a search for a value that produces the desired value of P. The search relies on the monotonicity of P with the other parameter. Note The beta density is proportional to $t^{(A-1)} * (1-t)^{(B-1)}$ Arguments P -- The integral from 0 to X of the chi-square distribution. Input range: [0, 1]. Q -- 1-P. Input range: [0, 1]. P + Q = 1.0. X -- Upper limit of integration of beta density. Input range: [0,1]. Search range: [0,1] Y -- 1-X. Input range: [0,1]. Search range: [0,1] X + Y = 1.0. A -- The first parameter of the beta density. Input range: (0, +infinity). Search range: [1D-100,1D100] B -- The second parameter of the beta density. Input range: (0, +infinity). Search range: [1D-100,1D100] STATUS -- 0 if calculation completed correctly -I if input parameter number I is out of range 1 if answer appears to be lower than lowest search bound 2 if answer appears to be higher than greatest search bound 3 if P + Q .ne. 1 4 if X + Y .ne. 1 BOUND -- Undefined if STATUS is 0 Bound exceeded by parameter number I if STATUS is negative. Lower search bound if STATUS is 1. Upper search bound if STATUS is 2.

Parameters

par1

par2

par3

which

Integer indicating which of the next four argument values is to be calculated from the others. Legal range: 1..4 iwhich = 1 : Calculate P and Q from X,Y,A and B iwhich = 2 : Calculate X and Y from P,Q,A and B iwhich = 3 : Calculate A from P,Q,X,Y and B iwhich = 4 : Calculate B from P,Q,X,Y and A

Return Values

STATUS -- 0 if calculation completed correctly -I if input parameter number I is out of range 1 if answer appears to be lower than lowest search bound 2 if answer appears to be

higher than greatest search bound 3 if $P + Q \neq 1$ 4 if $X + Y \neq 1$

stats_cdf_binomial

stats_cdf_binomial -- Calculates any one parameter of the binomial distribution given values for the others.

Description

float **stats_cdf_binomial** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_cdf_cauchy

stats_cdf_cauchy -- Not documented

Description

float **stats_cdf_cauchy** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_cdf_chisquare

stats_cdf_chisquare -- Calculates any one parameter of the chi-square distribution given values for the others.

Description

float **stats_cdf_chisquare** (float \$par1, float \$par2, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

which

Return Values

stats_cdf_exponential

stats_cdf_exponential -- Not documented

Description

float **stats_cdf_exponential** (float \$par1, float \$par2, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

which

Return Values

stats_cdf_f

stats_cdf_f -- Calculates any one parameter of the F distribution given values for the others.

Description

float **stats_cdf_f** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_cdf_gamma

stats_cdf_gamma -- Calculates any one parameter of the gamma distribution given values for the others.

Description

float **stats_cdf_gamma** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_cdf_laplace

stats_cdf_laplace -- Not documented

Description

float **stats_cdf_laplace** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_cdf_logistic

stats_cdf_logistic -- Not documented

Description

float **stats_cdf_logistic** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_cdf_negative_binomial

stats_cdf_negative_binomial -- Calculates any one parameter of the negative binomial distribution given values for the others.

Description

float **stats_cdf_negative_binomial** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_cdf_noncentral_chisquare

stats_cdf_noncentral_chisquare -- Calculates any one parameter of the non-central chi-square distribution given values for the others.

Description

float **stats_cdf_noncentral_chisquare** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_cdf_noncentral_f

stats_cdf_noncentral_f -- Calculates any one parameter of the Non-central F distribution given values for the others.

Description

float **stats_cdf_noncentral_f** (float \$par1, float \$par2, float \$par3, float \$par4, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

par4

which

Return Values

stats_cdf_poisson

stats_cdf_poisson -- Calculates any one parameter of the Poisson distribution given values for the others.

Description

float **stats_cdf_poisson** (float \$par1, float \$par2, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

which

Return Values

stats_cdf_t

stats_cdf_t -- Calculates any one parameter of the T distribution given values for the others.

Description

float **stats_cdf_t** (float \$par1, float \$par2, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

which

Return Values

stats_cdf_uniform

stats_cdf_uniform -- Not documented

Description

float **stats_cdf_uniform** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_cdf_weibull

stats_cdf_weibull -- Not documented

Description

float **stats_cdf_weibull** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_covariance

stats_covariance -- Computes the covariance of two data sets

Description

float **stats_covariance** (array \$a, array \$b)

Warning
This function is currently not documented; only its argument list is available.

Parameters

a

b

Return Values

stats_den_uniform

stats_den_uniform -- Not documented

Description

float **stats_den_uniform** (float *\$x*, float *\$a*, float *\$b*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

a

b

Return Values

stats_dens_beta

stats_dens_beta -- Not documented

Description

float **stats_dens_beta** (float \$x, float \$a, float \$b)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

a

b

Return Values

stats_dens_cauchy

stats_dens_cauchy -- Not documented

Description

float **stats_dens_cauchy** (float *\$x*, float *\$ave*, float *\$stdev*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

ave

stdev

Return Values

stats_dens_chisquare

stats_dens_chisquare -- Not documented

Description

float **stats_dens_chisquare** (float *\$x*, float *\$df*r)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

*df*r

Return Values

stats_dens_exponential

stats_dens_exponential -- Not documented

Description

float **stats_dens_exponential** (float *\$x*, float *\$scale*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

scale

Return Values

stats_dens_f

stats_dens_f --

Description

float **stats_dens_f** (float \$x, float \$dfr1, float \$dfr2)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

dfr1

dfr2

Return Values

stats_dens_gamma

stats_dens_gamma -- Not documented

Description

float **stats_dens_gamma** (float *\$x*, float *\$shape*, float *\$scale*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

shape

scale

Return Values

stats_dens_laplace

stats_dens_laplace -- Not documented

Description

float **stats_dens_laplace** (float *\$x*, float *\$ave*, float *\$stdev*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

ave

stdev

Return Values

stats_dens_logistic

stats_dens_logistic -- Not documented

Description

float **stats_dens_logistic** (float *\$x*, float *\$ave*, float *\$stdev*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

ave

stdev

Return Values

stats_dens_negative_binomial

stats_dens_negative_binomial -- Not documented

Description

float **stats_dens_negative_binomial** (float x , float n , float p)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

n

p

Return Values

stats_dens_normal

stats_dens_normal -- Not documented

Description

float **stats_dens_normal** (float *\$x*, float *\$ave*, float *\$stdev*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

ave

stdev

Return Values

stats_dens_pmf_binomial

stats_dens_pmf_binomial -- Not documented

Description

float **stats_dens_pmf_binomial** (float x , float n , float p)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

n

p

Return Values

stats_dens_pmf_hypergeometric

stats_dens_pmf_hypergeometric --

Description

float **stats_dens_pmf_hypergeometric** (float \$n1, float \$n2, float \$N1, float \$N2)

Warning
This function is currently not documented; only its argument list is available.

Parameters

n1

n2

N1

N2

Return Values

stats_dens_pmf_poisson

stats_dens_pmf_poisson -- Not documented

Description

float **stats_dens_pmf_poisson** (float x , float lb)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

lb

Return Values

stats_dens_t

stats_dens_t -- Not documented

Description

float **stats_dens_t** (float *\$x*, float *\$dfr*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

dfr

Return Values

stats_dens_weibull

stats_dens_weibull -- Not documented

Description

float **stats_dens_weibull** (float x , float a , float b)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

a

b

Return Values

stats_harmonic_mean

stats_harmonic_mean -- Returns the harmonic mean of an array of values

Description

number stats_harmonic_mean (array \$a)

Warning
This function is currently not documented; only its argument list is available.

Parameters

a

Return Values

stats_kurtosis

stats_kurtosis -- Computes the kurtosis of the data in the array

Description

float **stats_kurtosis** (array \$a)

Warning
This function is currently not documented; only its argument list is available.

Parameters

a

Return Values

stats_rand_gen_beta

stats_rand_gen_beta -- Generates beta random deviate

Description

float **stats_rand_gen_beta** (float \$a, float \$b)

Returns a random deviate from the beta distribution with parameters A and B. The density of the beta is $x^{(a-1)} * (1-x)^{(b-1)} / B(a,b)$ for $0 < x < 1$. Method R. C. H. Cheng.

Parameters

a

b

Return Values

stats_rand_gen_chisquare

stats_rand_gen_chisquare -- Generates random deviate from the distribution of a chisquare with "df" degrees of freedom random variable.

Description

float **stats_rand_gen_chisquare** (float *\$df*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

df

Return Values

stats_rand_gen_exponential

stats_rand_gen_exponential -- Generates a single random deviate from an exponential distribution with mean "av"

Description

float **stats_rand_gen_exponential** (float \$av)

Warning
This function is currently not documented; only its argument list is available.

Parameters

av

Return Values

stats_rand_gen_f

stats_rand_gen_f -- Generates a random deviate

Description

float **stats_rand_gen_f** (float \$dfn, float \$dfd)

Generates a random deviate from the F (variance ratio) distribution with "dfn" degrees of freedom in the numerator and "dfd" degrees of freedom in the denominator. Method : directly generates ratio of chisquare variates.

Parameters

dfn

dfd

Return Values

stats_rand_gen_uniform

stats_rand_gen_uniform -- Generates uniform float between low (exclusive) and high (exclusive)

Description

float **stats_rand_gen_uniform** (float \$low, float \$high)

Warning
This function is currently not documented; only its argument list is available.

Parameters

low

high

Return Values

stats_rand_gen_gamma

stats_rand_gen_gamma -- Generates random deviates from a gamma distribution

Description

float **stats_rand_gen_gamma** (float a , float r)

Generates random deviates from the gamma distribution whose density is $(A^R)/\Gamma(R) * X^{(R-1)} * \text{Exp}(-A * X)$.

Parameters

a
location parameter of Gamma distribution ($a > 0$).

r
shape parameter of Gamma distribution ($r > 0$).

Return Values

stats_rand_gen_ibinomial_negative

stats_rand_gen_ibinomial_negative -- Generates a single random deviate from a negative binomial distribution. Arguments : n - the number of trials in the negative binomial distribution from which a random deviate is to be generated ($n > 0$), p - the probability of an event ($0 < p < 1$)).

Description

int stats_rand_gen_ibinomial_negative (int $\$n$, float $\$p$)

Warning
This function is currently not documented; only its argument list is available.

Parameters

n

p

Return Values

stats_rand_gen_ibinomial

stats_rand_gen_ibinomial -- Generates a single random deviate from a binomial distribution whose number of trials is "n" ($n \geq 0$) and whose probability of an event in each trial is "pp" ($[0;1]$). Method : algorithm BTPE

Description

int **stats_rand_gen_ibinomial** (int \$n, float \$pp)

Warning
This function is currently not documented; only its argument list is available.

Parameters

n

pp

Return Values

stats_rand_gen_int

stats_rand_gen_int -- Generates random integer between 1 and 2147483562

Description

int stats_rand_gen_int (void)

Warning
This function is currently not documented; only its argument list is available.

Parameters

Return Values

stats_rand_gen_ipoisson

stats_rand_gen_ipoisson -- Generates a single random deviate from a Poisson distribution with mean "mu" ($\mu \geq 0.0$).

Description

int stats_rand_gen_ipoisson (float μ)

Warning
This function is currently not documented; only its argument list is available.

Parameters

mu

Return Values

stats_rand_gen_iuniform

stats_rand_gen_iuniform -- Generates integer uniformly distributed between LOW (inclusive) and HIGH (inclusive)

Description

int **stats_rand_gen_iuniform** (int *\$low*, int *\$high*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

low

high

Return Values

stats_rand_gen_noncenral_chisquare

stats_rand_gen_noncenral_chisquare -- Generates random deviate from the distribution of a noncentral chisquare with "df" degrees of freedom and noncentrality parameter "xnonc".
d must be ≥ 1.0 , xnonc must ≥ 0.0

Description

float **stats_rand_gen_noncenral_chisquare** (float \$df, float \$xnonc)

Warning
This function is currently not documented; only its argument list is available.

Parameters

df

xnonc

Return Values

stats_rand_gen_noncentral_f

stats_rand_gen_noncentral_f -- Generates a random deviate from the noncentral F (variance ratio) distribution with "dfn" degrees of freedom in the numerator, and "dfd" degrees of freedom in the denominator, and noncentrality parameter "xnonc". Method : directly generates ratio of noncentral numerator chisquare variate to central denominator chisquare variate.

Description

float **stats_rand_gen_noncentral_f** (float \$dfn, float \$dfd, float \$xnonc)

Warning
This function is currently not documented; only its argument list is available.

Parameters

dfn

dfd

xnonc

Return Values

stats_rand_gen_noncentral_t

stats_rand_gen_noncentral_t -- Generates a single random deviate from a noncentral T distribution

Description

float **stats_rand_gen_noncentral_t** (float *\$df*, float *\$xnonc*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

df

xnonc

Return Values

stats_rand_gen_normal

stats_rand_gen_normal -- Generates a single random deviate from a normal distribution with mean, *av*, and standard deviation, *sd* (*sd* >= 0). Method : Renames SNORM from TOMS as slightly modified by BWB to use RANF instead of SUNIF.

Description

float **stats_rand_gen_normal** (float *\$av*, float *\$sd*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

av

sd

Return Values

stats_rand_gen_t

stats_rand_gen_t -- Generates a single random deviate from a T distribution

Description

float **stats_rand_gen_t** (float df)

Warning
This function is currently not documented; only its argument list is available.

Parameters

df

Return Values

stats_rand_get_seeds

stats_rand_get_seeds -- Not documented

Description

array **stats_rand_get_seeds** (void)

Warning
This function is currently not documented; only its argument list is available.

Parameters

Return Values

stats_rand_phrase_to_seeds

stats_rand_phrase_to_seeds -- generate two seeds for the RGN random number generator

Description

array **stats_rand_phrase_to_seeds** (string \$phrase)

Warning
This function is currently not documented; only its argument list is available.

Parameters

phrase

Return Values

stats_rand_ranf

stats_rand_ranf -- Returns a random floating point number from a uniform distribution over 0 - 1 (endpoints of this interval are not returned) using the current generator

Description

float **stats_rand_ranf** (void)

Warning
This function is currently not documented; only its argument list is available.

Parameters

Return Values

stats_rand_setall

stats_rand_setall -- Not documented

Description

void stats_rand_setall (int \$iseed1, int \$iseed2)

Warning
This function is currently not documented; only its argument list is available.

Parameters

iseed1

iseed2

Return Values

stats_skew

stats_skew -- Computes the skewness of the data in the array

Description

float **stats_skew** (array \$a)

Warning
This function is currently not documented; only its argument list is available.

Parameters

a

Return Values

stats_standard_deviation

stats_standard_deviation -- Returns the standard deviation

Description

float **stats_standard_deviation** (array \$a [, bool \$sample])

Warning
This function is currently not documented; only its argument list is available.

Parameters

a

sample

Return Values

stats_stat_binomial_coef

stats_stat_binomial_coef -- Not documented

Description

float **stats_stat_binomial_coef** (int \$x, int \$n)

Warning
This function is currently not documented; only its argument list is available.

Parameters

x

n

Return Values

stats_stat_correlation

stats_stat_correlation -- Not documented

Description

float **stats_stat_correlation** (array \$arr1, array \$arr2)

Warning
This function is currently not documented; only its argument list is available.

Parameters

arr1

arr2

Return Values

stats_stat_gennch

stats_stat_gennch -- Not documented

Description

float **stats_stat_gennch** (int n)

Warning
This function is currently not documented; only its argument list is available.

Parameters

n

Return Values

stats_stat_independent_t

stats_stat_independent_t -- Not documented

Description

float **stats_stat_independent_t** (array \$arr1, array \$arr2)

Warning
This function is currently not documented; only its argument list is available.

Parameters

arr1

arr2

Return Values

stats_stat_innerproduct

stats_stat_innerproduct --

Description

float **stats_stat_innerproduct** (array \$arr1, array \$arr2)

Warning
This function is currently not documented; only its argument list is available.

Parameters

arr1

arr2

Return Values

stats_stat_noncentral_t

stats_stat_noncentral_t -- Calculates any one parameter of the noncentral t distribution give values for the others.

Description

float **stats_stat_noncentral_t** (float \$par1, float \$par2, float \$par3, int \$which)

Warning
This function is currently not documented; only its argument list is available.

Parameters

par1

par2

par3

which

Return Values

stats_stat_paired_t

stats_stat_paired_t -- Not documented

Description

float **stats_stat_paired_t** (array \$arr1, array \$arr2)

Warning
This function is currently not documented; only its argument list is available.

Parameters

arr1

arr2

Return Values

stats_stat_percentile

stats_stat_percentile -- Not documented

Description

float **stats_stat_percentile** (float *\$df*, float *\$xnonc*)

Warning
This function is currently not documented; only its argument list is available.

Parameters

df

xnonc

Return Values

stats_stat_powersum

stats_stat_powersum -- Not documented

Description

float **stats_stat_powersum** (array \$arr, float \$power)

Warning
This function is currently not documented; only its argument list is available.

Parameters

arr

power

Return Values

stats_variance

stats_variance -- Returns the population variance

Description

float **stats_variance** (array \$a [, bool \$sample])

Warning
This function is currently not documented; only its argument list is available.

Parameters

a

sample

Return Values