$$f(x; n_1, n_2, d) = \frac{\exp(-d/2)}{B\left(\dfrac{n_1}{2}, \dfrac{n_2}{2}\right)} x^{n_1/2-1} (xn_1 + n_2)^{-(n_1+n_2)/2} n_1^{n_1/2} n_2^{n_2/2} \, {}_1F_1\left(\frac{n_1+n_2}{2}, \frac{n_1}{2}, \frac{xdn_1}{2(xn_1+n_2)}\right),$$

where $B()$ is the **beta** function and ${}_1F_1()$ is the hypergeometric function **hyperG1F1**.

References

Abramowitz, M., and I.A. Stegun, *Handbook of Mathematical Functions*, 446 pp., Dover, New York, 1972.

Evans, M., N. Hastings, and B. Peacock, *Statistical Distributions*, 3rd ed., Wiley, New York, 2000.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsNCFCDF** and **StatsInvNCFCDF** functions.

StatsNCTCDF

StatsNCTCDF(*x*, *df*, *d*)

The StatsNCTCDF function returns the cumulative distribution function of the noncentral Student-T distribution. *df* is the degrees of freedom (positive integer) and *d* is the noncentrality measure. There is no closed form expression for the distribution.

References

Evans, M., N. Hastings, and B. Peacock, *Statistical Distributions*, 3rd ed., Wiley, New York, 2000.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsStudentCDF**, **StatsStudentPDF**, and **StatsNCTPDF** functions.

StatsNCTPDF

StatsNCTPDF(*x*, *df*, *d*)

The StatsNCTPDF function returns the probability distribution function of the noncentral Student-T distribution. *df* is the degrees of freedom (positive integer) and *d* is the noncentrality measure.

$$f(x; n, \delta) = \frac{n^{n/2} n!}{2^n e^{\delta^2/2} (n+x^2)^{n/2} \Gamma\left(\dfrac{n}{2}\right)} \left\{ \frac{\sqrt{2}\delta x \, {}_1F_1\left(\dfrac{n}{2}+1; \dfrac{3}{2}; \dfrac{\delta^2 x^2}{2(n+x^2)}\right)}{(n+x^2)\Gamma\left(\dfrac{n+1}{2}\right)} + \frac{{}_1F_1\left(\dfrac{n+1}{2}; \dfrac{1}{2}; \dfrac{\delta^2 x^2}{2(n+x^2)}\right)}{\sqrt{(n+x^2)}\Gamma\left(\dfrac{n}{2}+1\right)} \right\}$$

References

Evans, M., N. Hastings, and B. Peacock, *Statistical Distributions*, 3rd ed., Wiley, New York, 2000.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsStudentPDF**, **StatsStudentCDF**, and **StatsNCTCDF** functions.

StatsNormalCDF

StatsNormalCDF(*x*, *m*, *s*)

The StatsNormalCDF function returns the normal cumulative distribution function

$$F(x, \mu, \sigma) = \frac{1}{2} + \frac{1}{2} erf\left(\frac{x-\mu}{\sigma\sqrt{2}}\right),$$