

## Bivariate normal distribution

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$$p(x, y) = \frac{1}{2\pi\sigma_x\sigma_y\sqrt{1-\rho}} \exp\left(\frac{\nu_x^2 - 2\rho\nu_x\nu_y + \nu_y^2}{2(1-\rho^2)}\right)$$

$$\nu_x = \frac{x - \mu_x}{\sigma_x}, \nu_y = \frac{y - \mu_y}{\sigma_y}$$

The bivariate normal probability density function for two correlated normal distributed variables x and y.

### Symbol list:

$p(x, y)$	Bivariate normal probability distribution function
$\mu_x$	Mean of x
$\sigma_x$	Standard deviation of x
$\mu_y$	Mean of y
$\sigma_y$	Standard deviation of y
$\rho$	Correlation between x and y