

## PROBABILITY DISTRIBUTIONS

Name	Parameters	Probability distribution / density function	Mean	Variance
Binomial	$n, p$	$P(X = r) = \binom{n}{r} p^r (1 - p)^{n-r},$ $r = 0, 1, 2, \dots, n$	$np$	$np(1 - p)$
Poisson	$\lambda$	$P(X = n) = \frac{e^{-\lambda} \lambda^n}{n!},$ $n = 0, 1, 2, \dots$	$\lambda$	$\lambda$
Normal	$\mu, \sigma$	$f(x) = \frac{1}{\sigma\sqrt{2\pi}} \exp\left\{-\frac{1}{2} \left(\frac{x-\mu}{\sigma}\right)^2\right\},$ $-\infty < x < \infty$	$\mu$	$\sigma^2$
Exponential	$\lambda$	$f(x) = \lambda e^{-\lambda x},$ $x > 0, \quad \lambda > 0$	$\frac{1}{\lambda}$	$\frac{1}{\lambda^2}$