

Continuous random variables

Name	Abbrev.	Parameters	p.d.f.: $f(x)$, $x \in \mathbb{R}$	$\mathbb{E}[X]$	$\text{Var}(X)$
Uniform	$\mathcal{U}(a, b)$	$a, b \in \mathbb{R}, a < b$	$\begin{cases} \frac{1}{b-a}, & \text{if } x \in [a, b], \\ 0, & \text{if } x \notin [a, b]. \end{cases}$	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$
Normal	$\mathcal{N}(\mu, \sigma^2)$	$\mu, \sigma \in \mathbb{R}$	$\frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$	μ	σ^2
Exponential	$\text{Exp}(\lambda)$	$\lambda > 0$	$\begin{cases} \lambda e^{-\lambda x}, & \text{if } x \geq 0, \\ 0, & \text{if } x < 0. \end{cases}$	$\frac{1}{\lambda}$	$\frac{1}{\lambda^2}$