MA34B - Estadística - Tabla de Distribuciones

Distribución	Sigla	Densidad	E(X)	Var(X)	f.g.m.
Bernoulli	Ber(p)	$p^k(1-p)^{1-k}$ k=0,1 $\quad 0 \le p \le 1$	p	p(1-p)	$(pe^t + 1\text{-}p)$
Binomial	B(n,p)	$\binom{n}{z} p^z (1-p)^{n-z}$ z=0,…,n $\quad 0 \le p \le 1$	np	np(1-p)	$(pe^t + 1\text{-}p)^n$
Binomial Negativa	BN(r,p)	$\binom{r-1}{z-1} p^{z-1}(1-p)^{n-z}$ z=1,…,n $\quad 0 \le p \le 1$	$\frac{r(1-p)}{p}$	$\frac{r(1-p)}{p^2}$	$\left(\frac{pe^t}{1-(1-p)e^t}\right)^r$
Beta	Beta(α,β)	$\frac{\Gamma(\alpha+\beta)}{\Gamma(\alpha)\Gamma(\beta)} x^{\alpha-1}(1-x)^{\beta-1}$ 0 < x < 1 $\quad$ α>0 , β>0	$\frac{\alpha}{\alpha+\beta}$	$\frac{\alpha\beta}{(\alpha+\beta)^2(\alpha+\beta}$	
Poisson	P(λ)	$\frac{\lambda^k e^{-\lambda}}{k!}$ k=0,…,∞ $\quad \lambda > 0$	λ	λ	$e^{\lambda(e^t-1)}$
Uniforme	U(a,b)	$\frac{1}{b-a}$ $\quad a \le x \le b$	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$	$\frac{e^{bt}-e^{at}}{(b-a)t}$

Gamma	G(α,β)	$\frac{\beta^{\alpha}}{\Gamma(\alpha)} x^{\alpha-1} e^{-\beta x}$ x > 0 α>0 , β>0	$\frac{\alpha}{\beta}$	$\frac{\alpha}{\beta^2}$	$\left(\frac{\beta}{\beta-t}\right)^{\alpha}$
Exponencial	Exp(λ)	$\lambda e^{-\lambda x}$ x > 0 , λ > 0	$\frac{1}{\lambda}$	$\frac{1}{\lambda^2}$	$\frac{\lambda}{\lambda-t}$
Chi Cuadrado	χ_n^2	$\frac{x^{\frac{n}{2}-1} e^{-\frac{x}{2}}}{2^{\frac{n}{2}} \Gamma\left(\frac{n}{2}\right)}$ x ≥ 0	n	2n	$\frac{1}{(1-2t)^{n/2}}$
Normal	N(μ,σ2)	$\frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{1}{2}\frac{(x-\mu)^2}{\sigma^2}}$ -∞ ≤ x ≤ ∞	μ	σ^2	$e^{t\mu+\frac{\sigma^2 t^2}{2}}$
t- Student	t_n	$\frac{\Gamma\left(\frac{n+1}{2}\right)}{(n\pi)^{\frac{1}{2}} \Gamma\left(\frac{n}{2}\right)} \left(1+\frac{x^2}{n}\right)^{-\frac{(n+1)}{2}}$ -∞ ≤ x ≤ ∞	0 para n>1	$\frac{n}{n-2}$ para n>2	
F- Fisher	Fm,n	$\frac{\Gamma\left(\frac{1}{2}(m+n)\right) m^{\frac{m}{2}} n^{\frac{n}{2}}}{\Gamma\left(\frac{1}{2}m\right)\Gamma\left(\frac{1}{2}n\right)} \frac{x^{\frac{m}{2}-1}}{(mx+n)^{\frac{m+n}{2}}}$ x > 0			

OBS: $\Gamma(p) = \int_0^{\infty} x^{p-1} e^{-x} dx$ y $\Gamma(p) = (p-1)\Gamma(p-1)$