Lab Nr. 5, Probability and Statistics

Numerical Characteristics of Random Variables

Statistics Toolbox: **stat**

The means and variances of the following distributions:

Distribution	**Notation**	**Mean** $E(X)$	**Variance** $V(X)$
discrete uniform	$U(m)$	(m+1)/2	(m^2-1)/12
binomial	$B(n,p)$	n*p	n*p*q , q =1-p
hypergeometric	$H(N,n_1,n)$	n*n1/N	n*n1*(N-n1)*(N-n)/(N^2*(N-1))
Poisson	$P(\lambda)$	λ	λ
Pascal (Neg. Bin.)	$NB(n,p)$	n*q/p , q=1-p	n*q/p^2
geometric	$G(p)$	(1-p)/p	(1-p)/p^2
uniform	$U(a,b)$	(a+b)/2	(a-b)^2/12
normal	$N(\mu,\sigma)$	μ	σ^2
gamma	$Ga(a,b)$	a*b	a*b^2
exponential	$Exp(\lambda)$	1/λ	1/λ^2
beta	$\beta(a,b)$	a/(a+b)	ab/((a+b+1)*(a+b)^2)
Student	$T(n)$	0	n/(n-2)
chi squared	$\chi^2(n)$	n	2*n
Fisher	$F(m,n)$	n/(n-2)	2*n^2*(m+n-2)/(m*(n-2)^2*(n-4))