Discrete Distributions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Name | Formula | Support and par space | Mean | Variance | MLE | MGF |
| Binomial()  successes out of trials with prob. of success |  |  |  |  |  |  |
| Geometric  failures and one success with prob |  |  |  |  |  |  |
| Hypergeometric  red and green marbles in an urn, remove is number of red marbles in the sample |  | = max(0,  ), …, min( |  |  |  | Not useful |
| Negative Binomial()  is the number of failures before the th success with prob |  |  |  |  |  |  |
| Poisson()  is the expected count in an interval |  |  |  |  |  |  |

Continuous Distributions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Formula | Support and Par Space | Mean & Var | MLE | MGF |
| Normal() |  |  |  |  |  |
| Gamma() |  | Shape:  Rate: |  | No closed form |  |
| Exponential()  aka Gamma(1, ) |  | Rate: |  |  |  |
| Chi-Square()  aka Gamma |  |  |  | No closed form |  |
| Beta() |  | Shape1:  Shape2: |  | No closed form | Not useful |
| Weibull() |  | Shape:  Scale: |  | No closed form | Not useful |
| Lognormal()  If , then is Lognormal |  | Shape:  Scale: |  |  | Not useful |