The Poisson Distribution

The Poisson distribution is another of our distributions for **DISCRETE** data

If events occur, in a given interval, independently at a random with a constant average rate λ then:

$$P(X = r) = \frac{e^{-\lambda}\lambda^r}{r!}$$

Notation

The Poisson distribution is noted as

$$Po(\lambda)$$

where the parameter λ is both the mean and the variance

Suitability

The Poisson distribution is a suitable model when:

- events are independent
- events are random
- events occur at a constant average

Calculating Probabilities:

- Poison Formula [$P(X = r)$)]
- Poisson tables [($P(X \leq r)$]
- Poisson PD [$P(X = r)$)]
- Poisson CD [($P(X \leq r)$]