

Variabile continue

Formule:

$$\begin{aligned}\text{Fct. densitate de probabilitate} &: \rho: \mathbb{R} \rightarrow \mathbb{R} \\ \text{Fct. de repartitie} &: \int_{-\infty}^x \rho(t) dt \\ M(X) &: \int_{\mathbb{R}} x \rho(x) dx \\ M(X^k) &: \int_{\mathbb{R}} x^k \rho(x) dx \\ \text{Dispersia} &: M(X^2) - [M(X)]^2\end{aligned}$$

Repartitia Binomiala:

$$\begin{aligned}X &: \binom{k}{P(n, k)}_{k \in 0, n} \\ P(n, k) &= C_n^k \times p^k \times q^{n-k} \\ M(X) &= \sum_{k=0}^n k \times P(n, k) \\ &= \sum_{k=1}^n k \times C_n^k \times p^k \times q^{n-k} \\ &= \sum_{k=1}^n k \times \frac{n!}{k!(n-k)!} \times p^k \times q^{n-k} \\ &= np \\ D^2(X) &= \sum_{k=0}^n k^2 \times C_n^k \times p^k \times q^{n-k} - (np)^2 = npq\end{aligned}$$