Matematikai statisztika 2. – Képletgyűjtemény

Összeállította: Daróczi Gergely, PPKE BTK

$$(a+b)^n = a^n + \binom{n}{1}a^{n-1}b^1 + \binom{n}{2}a^{n-2}b^2 + \ldots + \binom{n}{k}a^1b^{n-1} + \binom{n}{(n-1)} + b^n = \sum_{k=0}^{n}\binom{n}{k}\cdot a^{n-k}\cdot b^k$$

$$P_n = n!$$

$$P_n^{k_1,k_2,\ldots,k_s} = \frac{n!}{k_1!\cdot k_2!\cdot\ldots\cdot k_s!}$$

$$V_n^k = \frac{n!}{(n-k)!}$$

$$V_n^{k,i} = n^k$$

$$C_n^k = \binom{n}{k} = \frac{n!}{(n-k)!\cdot k!}$$

$$C_n^{k,i} = \binom{n+k-1}{k}$$

$$N_k = \binom{s}{k}\cdot\binom{N-s}{n-k}$$

$$A\cap(B\cup C) = (A\cap B)\cup(A\cap C)$$

$$A\cup(B\cap C) = (A\cup B)\cap(A\cup C)$$

$$\overline{A\cup B} = \overline{A}\cap\overline{B}$$

$$\overline{A\cap B} = \overline{A}\cup\overline{B}$$

$$A\cup(A\cap B) = A$$

$$A\cap(A\cup B) = A$$

$$P(A) = \frac{n}{k}$$

$$P(A_k) = \frac{\binom{s}{k}\cdot\binom{N-s}{n-k}}{\binom{N}{n}}$$

$$P(C_k) = \frac{\binom{n}{k}\cdot s^k(N-s)^{n-k}}{N^n}$$

$$P(B-A) = P(B)-P(A)$$

$$P(A\cup B) = P(A)+P(B)-P(A\cap B)$$

$$P(A\setminus B) = \frac{P(A\cap B)}{P(B)}$$

$$P(A\cap B) = P(B)\cdot P(A\setminus B)$$

$$P(B_k\setminus A) = \frac{P(A\setminus B_k)\cdot P(B_k)}{\sum P(A\setminus B_i)\cdot P(B_i)}$$

$$P(\xi=1) = p, P(\xi=0) = 1-p = q$$

$$P(\xi=k) = \frac{\binom{s}{k}\cdot\binom{N-s}{n-k}}{\binom{N}{k}}$$

$$P(\xi=k) = \binom{n}{k}\cdot p^k\cdot(1-p)^{n-k}$$

$$P(\xi=k) = \frac{\lambda^k}{k!}\cdot e^{-\lambda}$$

$$M(\xi) = \sum_{i=1}^{n} x_i\cdot p_i$$

$$M(\xi) = \int_{-\infty}^{\infty} xf(x)dx$$

$$P(\xi=x_i\setminus\eta=y_n) = \frac{P(\xi=x_i,\eta=y_n)}{P(\eta=y_k)}$$

$$\bar{x} = \frac{x_1+x_2+\ldots+x_n}{n}$$

$$D(\xi) = +\sqrt{M(\xi-M(\xi))^2}$$

$$S_x^* = +\sqrt{\frac{\sum_{i=1}^{n}(x_i-\bar{x})^2}{n-1}}$$

$$CI(\bar{x}) = \bar{x}\pm 1,96\cdot SE(x)$$

$$SE(x) = \sqrt{\frac{S_x^*}{n}}$$