

Sample Size Estimation with correlation co-efficient

$$N = \frac{(Z_{\alpha/2} + Z_{1-\beta})^2}{\frac{1}{4} \left[\log_e \left(\frac{1+r}{1-r} \right) \right]} + 3'$$

Where,

N= Sample Size

$Z_{\alpha/2}$ = critical value of the Normal distribution at $\alpha/2$ (confidence level)

$Z(1- \beta)$ = critical value of the Normal distribution at β (power)

r = correlation co-efficient