Introduction to Statistical Method

Inference on Proportions

$$X = \begin{cases} 1 & \text{has trait} \\ 0 & \text{does not have trait} \end{cases}$$

$$p = \frac{\#\text{members with trait}}{\text{population size}} = \frac{1}{N}\sum_{i=1}^{N} x_i$$

If we take a random sample $X_1, \dots X_n$ of X, the sample mean $\hat{p} = \overline{X} = \frac{1}{n}\sum_{i=1}^{n} X_i$ is unbiased estimator for p.