Glossary

1. **Bernoulli Population**
   In the theory of finite population sampling, Bernoulli sampling is a sampling process where each element of the population that is sampled is subjected to an independent Bernoulli trial which determines whether the element becomes part of the sample during the drawing of a single sample. An essential property of Bernoulli sampling is that all elements of the population have equal probability of being included in the sample during the drawing of a single sample.

2. **Beta**
   Beta is the second letter of the Greek alphabet (B, β).

3. **Delta**
   Delta is the fourth letter of the Greek alphabet (uppercase Δ, lowercase δ)

4. **Estimator**
   The term estimator refers to the formula or expression used to calculate the estimate, the actual numerical value estimate of the population parameter in a particular problem.

5. **Mean**
   For a data set, the arithmetic mean is equal to the sum of the values divided by the number of values. The arithmetic mean of a set of numbers x_1, x_2, ..., x_n is typically denoted by x bar. If the data set were based on a series of observations obtained by sampling from a statistical population, the arithmetic mean is termed the sample mean (x bar) to distinguish it from the population mean (mu or mu x)

6. **Method of Maximum Likelihood**
   Maximum-likelihood estimation (MLE) is a method of estimating the parameters of a statistical model. When applied to a data set and given a statistical model, maximum-likelihood estimation provides estimates for the model's parameters

7. **Modulus**
   In mathematics, the absolute value (or modulus) $|a|$ of a real number a is the numerical value of a without regard to its sign. So, for example, the absolute value of 3 is 3, and the absolute value of –3 is also 3. The absolute value of a number may be thought of as its distance from zero.

8. **Normal Distribution**
   A normal distribution is a function that represents the distribution of many random variables as a symmetrical bell-shaped graph.

9. **Parameter**

A statistical parameter is a parameter that indexes a family of probability distributions. It can be regarded as a numerical characteristic of a population or a model.

10. **Population**

A population is a collection of units being studied. Units can be people, places, objects, procedures, or many other things. Much of statistics is concerned with estimating numerical properties (parameters) of an entire population from a random sample of units from the population.

11. **Probability Density Function**

Probability density function (pdf), or density of a continuous random variable, is a function that describes the relative likelihood for this random variable to take on a given value. The probability for the random variable to fall within a particular region is given by the integral of this variable's density over the region. The probability density function is nonnegative everywhere, and its integral over the entire space is equal to one.

12. **Random Variable**

In probability and statistics, a random variable or stochastic variable is a variable whose value is subject to variations due to chance (i.e. randomness, in a mathematical sense). As opposed to other mathematical variables, a random variable conceptually does not have a single, fixed value rather; it can take on a set of possible different values, each with an associated probability.

13. **Sigma**

$\sum$ "sigma" = summation. This is upper-case sigma. Lower-case sigma σ, means standard deviation of a population. The order of operations, such as $\sum x^2$ as opposed to $(\sum x)^2$ should be given careful consideration.

14. **Theta (Θ**

In statistics, θ, the lowercase Greek letter 'theta', is the usual name for a (vector of) parameter(s) of some general probability distribution.

15. **Uniform Distribution**

In probability theory and statistics, the continuous uniform distribution or rectangular distribution is a family of probability distributions such that for each member of the family, all intervals of the same length on the distribution's support are equally probable. The support is defined by the two parameters, *a* and *b*, which are its minimum and maximum values. The distribution is often abbreviated *U* (*a*, *b*).