Glossary

1. **Alternative Hypothesis**
   The alternative hypothesis, H_1, is a statement of what a statistical hypothesis test is set up to establish. For example, in a clinical trial of a new drug, the alternative hypothesis might be that the new drug has a different effect, on average, compared to that of the current drug.

2. **Chi square distribution**
   The chi-squared distribution (also chi-square or χ^2-distribution) with k degrees of freedom is the distribution of a sum of the squares of k independent standard normal random variables. It is one of the most widely used probability distributions in inferential statistics, e.g., in hypothesis testing or in construction of confidence intervals.

3. **Covariance**
   Covariance is a measure of how much two random variables change together.
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4. **Degrees of freedom**
   In statistics, the number of degrees of freedom is the number of values in the final calculation of a statistic that are free to vary. The number of independent ways by which a dynamical system can move without violating any constraint imposed on it, is called degree of freedom.

5. **F distribution**
   The F-distribution is a continuous probability distribution it is also known as Snedecor's F distribution or the Fisher-Snedecor distribution (after R.A. Fisher and George W. Snedecor). The F-distribution arises frequently as the null distribution of a test statistic, most notably in the analysis of variance.

6. **Normal distribution**
   In probability theory, the normal (or Gaussian) distribution is a continuous probability distribution that has a bell-shaped probability density function, known as the Gaussian function or informally as the bell curve.
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7. **Null Hypothesis**
   The null hypothesis, H_0, represents a theory that has been put forward, either because it is believed to be true or because it is to be used as a basis for argument, but has not been proved. For example, in a clinical trial of a new drug, the null hypothesis might be that the new drug is no better, on average, than the current drug.

8. **Probability distribution**
   Probability distribution is a function that gives the probability of all elements in a given space.

9. **Significance level**

   The significance level of a statistical hypothesis test is a fixed probability of wrongly rejecting the null hypothesis H_0, if it is in fact true.

10. **Statistic**

    Statistic is the result of applying a statistical algorithm to a data set. It can also be described as an observable random variable

11. **Summation**

    Summation is the operation of adding a sequence of numbers; the result is their sum or total.

12. **Test Statistic**

    In hypothesis testing, a hypothesis test is typically specified in terms of a test statistic, which is a function of the sample. It is as a numerical summary of a set of data that reduces the data to one or a small number of values that can be used to perform a hypothesis test

13. **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).

14. **Variance**

    Variance is a measure of how far a set of numbers is spread out. It is one of several descriptors of a probability distribution, describing how far the numbers lie from the mean (expected value).

15. **Weibull Distribution**

    The Weibull distribution is a continuous probability distribution. It is named after Waloddi Weibull.