Glossary:

Experiment: A study designed to be conducted under controlled conditions. An experiment is generally aimed at comparing the effects of various alternative treatments, one of which is applied to each of a number of experimental units.

Experimental unit: The basic object upon which a study (usually an experiment) is carried out, for example, an animal, a tree, a sample of soil, a household, a patient in a clinical trial. Sampling Unit and Observational Unit are similarly defined, but tend to be applied to surveys and observational studies, respectively.

randomized block design - an experimental design in which different treatments are distributed in random order in a block or plot

Error term: The term in a statistical model allowing for extra random variation not accounted for by the parameters in the model itself. The term can also referred to as the residual term.

Randomisation: The process by which experimental or sampling units are selected or allocated by chance

Replication: the repetition in a study of a treatment or other factor

null hypothesis : is a term that often use to indicate the statistical hypothesis tested

Alternative hypothesis; Alternative to the null hypothesis

Principle of least squares;
A method of determining the value that best describes the relationship between exp ected and observed sets of data by
minimizing the sums of the squares of deviation between observed and expected val ues

Analysis of Variance: breaking down of total variation into orthogonal components

Chi-squared distribution: A distribution derived from the **normal distribution**.

ANOVA - a statistical method for making simultaneous comparisons between two or more means;

Model: Mathematical equation specified by theory

Treatment: Various objects of comparison in a comparative experiment are called treatments.

degrees of freedom"- number of independent values in the final calculation of a statistic

Blocks: With a randomized block design, the experimenter divides subjects into subgroups called blocks, such that the variability within blocks is less than the variability between blocks

Treatment: Used in experimental design to define a treatment administered to a set of units

Two-way ANOVA: An analysis of variance that involves two sets of factors or treatments

SST- Total Sum of Square-Total variability in the data

SSE-Error sum of square=a sum of squares of the differences of the observations within treatments averages

SSTR – Treatment sum of squares-sum of squares of the differences between the treatment averages and the grand average

SSB – Block sum of squares-sum of squares of the differences between the block averages and the grand average

ANOVA Table: The results of the ANOVA are presented in an ANOVA table, which has columns labeled Sum of Squares , degrees of freedom, Mean Square, F-ratioand Sig.

Treatment effect ; The average **treatment effect** is a measure used to compare **treatments** in randomized experiments,

Block effect; The average **block effect** is a measure used to compare **blocks** in randomized experiments,

Statistics: computed from sample data

Test Statistics: Quantity computed from sample data used to evaluate the plausibility of a restricted model

F distribution: A continuous probability distribution of the ratio of two independent random variables, each having a Chi-squared distribution, divided by their respective degrees of freedom. Its commonest use is to assign *P* values to mean square ratios in am analysis of variance.

F test: The test based on the F distribution used to test for statistical significance of the ratio of two Chi-squared distributions.