Syllabus of Statistics

1	Introduction and type of data, Types of data, Descriptive and Inferential statistics, Scales of measurement
2	Describing categorical data Frequency distribution of categorical data, Best practices for graphing categorical data, Mode and median for categorical variable
3	Describing numerical data Frequency tables for numerical data, Measures of central tendency - Mean, median and mode, Quartiles and percentiles, Measures of dispersion - Range, variance, standard deviation and IQR, Five number summary
4	Association between two variables - Association between two categorical variables - Using relative frequencies in contingency tables, Association between two numerical variables - Scatterplot, covariance, Pearson correlation coefficient, Point bi-serial correlation coefficient
5	Basic principles of counting and factorial concepts - Addition rule of counting, Multiplication rule of counting, Factorials
6	Permutations and combinations
7	Probability Basic definitions of probability, Events, Properties of probability
8	Conditional probability - Multiplication rule, Independence, Law of total probability, Bayes' theorem
9	Random Variables - Random experiment, sample space and random variable, Discrete and continuous random variable, Probability mass function, Cumulative density function
10	Expectation and Variance - Expectation of a discrete random variable, Variance and standard deviation of a discrete random variable

11	Binomial and poisson random variables - Bernoulli trials, Independent and identically distributed random variable, Binomial random variable, Expectation and variance of abinomial random variable, Poisson distribution
12	Introduction to continous random variables - Area under the curve, Properties of pdf, Uniform distribution, Exponential distribution