Chi-square

-Goodness of fit of an observed distribution

-CI for population SD of a normal distribution from a sample standard deviation

-Hypo testing for CI for population variance

F distribution

-For ANOVA

-F stat: comparing two population variances

T distribution (Student's t)

-symmetric like the normal distribution but has heavier tail

Z score

-The number of SD above or below the mean

Poisson

-Discrete probability distribution

-Probability of a given number of events occurring in a fixed interval of time

-For example: Time interval in one year

Gamma

-Commonly used in Bayesian method, where the gamma distribution is used as a **conjugate prior distribution** for various types of inverse scale (rate) parameters

Binomial

-Discrete

-Yes or no

-n independent experiment

Bernoulli

-Special case of Binomial when n=1

Exponential

-Continuous and independent at a **constant average rate;**

-For example: battery time lasted

Uniform

-An experiment where there is an arbitrary outcome that lies between certain bounds.

-**Equally likely outcome;** for example: a deck of cards games

P value

The p value is the **minimum level of significance** where the **null hypotheses** can be **rejected** and in favor of the alternative hypothesis.

t-test

A t-test is a statistical test that compares the means of two samples. It is used in hypothesis testing, with a null hypothesis that the difference in group means is zero and an alternate hypothesis that the difference in group means is different from zero.