

Advanced Inferential Statistics

1. Analysis of Variance (ANOVA):

.ANOVA is a statistical method used to compare means across multiple groups. It assesses whether there are statistically significant differences between the means of two or more groups.

2. Nonparametric Statistics:

.Nonparametric statistics are used when the assumptions of parametric statistics are not met or when the data is not normally distributed.

.Common nonparametric tests include the Wilcoxon signed-rank test, Mann-Whitney U test, and Kruskal-Wallis test.

Bayesian Statistics

1. Bayesian Inference:

.Bayesian inference is a statistical method based on Bayes' theorem, which allows for the updating of beliefs in light of new evidence.

.It provides a framework for incorporating prior knowledge and uncertainty into statistical analysis.

2. Bayesian Networks:

.Bayesian networks are graphical models that represent probabilistic relationships between variables.

.They are used for modeling complex systems and making predictions based on probabilistic dependencies.

Time Series Analysis

1. Time Series Data:

.Time series data consists of observations collected over successive time intervals. It is used to analyze trends, seasonality, and patterns in data over time.

2. Forecasting:

.Time series analysis techniques such as moving averages, exponential smoothing, and ARIMA models are used for forecasting future values based on historical data.