
Advanced Skill Certificate in AI in Public Health and Epidemiology

Advanced Statistics for Epidemiology

Advanced Statistics for Epidemiology: Advanced statistical methods used in epidemiology to analyze and interpret data related to disease patterns, risk factors, and health outcomes.

Bayesian Statistics: A statistical approach that combines prior knowledge with current data to make inferences about population parameters.

Confounding Variable: A variable that distorts the relationship between the independent and dependent variables in a study, leading to incorrect conclusions.

Cox Proportional Hazards Model: A statistical model used to analyze the relationship between survival time and one or more predictor variables.

Descriptive Statistics: Statistical techniques used to summarize and describe the main features of a dataset.

Hazard Ratio: A measure of how much more likely an event is to occur in one group compared to another group over time.

Hypothesis Testing: A statistical method used to determine whether there is enough evidence to reject a null hypothesis.

Incidence Rate: The number of new cases of a disease that occur in a population at risk during a specific time period.

Logistic Regression: A statistical model used to examine the relationship between a categorical dependent variable and one or more independent variables.

Multiple Imputation: A technique used to handle missing data by creating multiple sets of imputed values based on the observed data.

Negative Binomial Regression: A regression model used to analyze count data with overdispersion, where the variance exceeds the mean.

Odds Ratio: A measure of association between an exposure and an outcome in a case-control study.

Parametric Survival Analysis: A statistical method used to model survival data assuming a specific distribution for the survival times.

Poisson Regression: A regression model used to analyze count data when the outcome variable follows a Poisson distribution.

Random Effects Model: A statistical model that accounts for clustering or repeated measures within the data by including random effects in the model.

Receiver Operating Characteristic (ROC) Curve: A graphical representation of the trade-off between sensitivity and specificity for a binary classifier.

Relative Risk: A measure of the strength of association between an exposure and an outcome in a cohort study.

Sample Size Calculation: The process of determining the number of subjects needed for a study to detect

a specified effect size with a given level of confidence.

Survival Analysis: A statistical method used to analyze time-to-event data, such as time until death or disease recurrence.

Time Series Analysis: A statistical technique used to analyze data collected at regular intervals over time to identify patterns and trends.

Zero-Inflated Poisson Regression: A regression model used to analyze count data with excess zeros, where the data may come from a mixture of two processes.