

Module 1: Foundations of Statistical Thinking

Key Topics

- Descriptive vs Inferential Statistics
- Types of Data: Nominal, Ordinal, Interval, Ratio
- Measures of Central Tendency: Mean, Median, Mode
- Measures of Dispersion: Range, Variance, Std Dev
- Probability Distributions: Normal, Binomial, Poisson

Descriptive Statistics

Descriptive statistics summarize key features of data:

- Mean: Average
- Median: Middle value
- Mode: Most frequent

Dispersion helps understand spread using range, variance, and standard deviation.

Probability Distributions

- Normal: Bell-shaped, symmetric
- Binomial: Two outcomes, fixed trials
- Poisson: Count of rare events

Takeaways

Statistics help describe and understand data. Knowing when to use descriptive vs inferential methods is essential. Grasp the differences between data types and understand the importance of summary metrics and distributions.