

Managerial Economics - Lecture Notes

1. Descriptive Analytics

Descriptive analytics focuses on summarizing historical data to understand what has happened.

- Data Types: Categorical, Ordinal, Interval, Ratio
- Summary Statistics: Mean, Median, Mode, Standard Deviation
- Data Visualization: Histograms, Bar Charts, Boxplots
- Data Cleaning: Handling missing values and outliers
- Pivot Tables and Cross-tabulations for deeper insights

2. Predictive Analytics

Predictive analytics uses statistical models and machine learning to forecast future outcomes.

- Regression Analysis: Linear and Multiple Regression
- Classification: Logistic Regression, Decision Trees
- Model Evaluation: R-squared, RMSE, Confusion Matrix
- Overfitting and Underfitting: Balancing model complexity
- Cross-validation: Ensuring generalizability of the model

3. Prescriptive Analytics

Prescriptive analytics recommends actions based on data and model outcomes.

- Optimization Models: Linear Programming for resource allocation
- Sensitivity Analysis: Assessing robustness of solutions
- Simulation: Monte Carlo simulations for decision-making under uncertainty
- Decision Analysis: Decision trees and payoff tables
- Applications in supply chain, marketing, and finance