



## **Business Statistics & Data Analysis**

(24 hours)

### **Audience and Purpose:**

Course is for Marketing, Sales, HR, Business Analysis, and Managers who routinely analyze data for business application. Areas of focus include statistics, distribution analysis, capability assessment, graphing, prediction, forecasting, comparison tests, sample size selection and model fitting.

**Software: JMP**

**Prerequisites: None**

### **Course Objectives:**

Upon completion of the course the participants will be able to:

1. Understand the ideas associated with sampling and data collection
2. Demonstrate the ability to evaluate distributions
3. Select appropriate sample sizes for performance evaluation
4. Conduct comparative tests using data
5. Use regression techniques in order to analyze the results and make performance improvements
6. Select appropriate analysis technique based on type of data

### **Course Outline:**

#### **Section I: Introduction to the Analytical Software (JMP)**

Table commands  
Column commands  
Row commands  
Subset, Stack and Join commands  
Saving data and graphs

#### **Section II: Statistics Foundations & Distribution Analysis**

Measures of center and spread  
Standard error and central limit theorem  
Normal distribution, t distribution and confidence intervals  
Test for Normality  
Data and tolerance intervals (normal)  
Process capability (normal) and non-normal distribution fitting



### **Section III: Nominal X, Continuous Y**

Contour plots, Components of Variance, REML and POV  
Sample size for the mean and standard deviation  
t test - one sample, two sample and paired  
Test for differences in variances  
One-way ANOVA and N way ANOVA

### **Section IV: Continuous X, Continuous Y**

Simple linear regression, correlation  
Multiple Regression and ANCOVA  
Forecasting and time series analysis

### **Section V: Nominal X, Nominal Y**

Mean and Sigma for proportion defective  
Sample size and statistical tests for proportion defective  
Mean and Sigma for defect per unit  
Chi-square test for defects and proportion defective  
Pareto graphs and cross tabs analysis

### **Section VI: Continuous X, Nominal Y**

Logistic regression