Applied Statistics for Business Analytics Applications™

Scope:
This course is intended for those who need practical skills and knowledge in using statistical tools and techniques for Business Analytics (BA) applications—or so-called "Exploratory Analysis." The course will emphasize where and when the tools and procedures apply, including the inputs they rely on, as well as the end-results—or outputs—they produce. Approximately one-fourth of the course will be devoted to a review of the basics to ensure the participants have a common understanding of the fundamental principles, terminology, parameters, and symbology. The remainder will be devoted to advanced tools and techniques.

Description:
This course covers a limited set of statistical tools and techniques that are relevant to the client's applications and situations, such as business forecasting, trend analysis, and exploring patterns and hidden opportunities. The tools and techniques will be introduced from the standpoint of their practical utility as well as the outputs they are capable of producing, rather than their mathematical structure or derivation. Hands-on exercises will be used to reinforce learning by taking advantage of the built-in statistical functions in MS Excel.

Topics:
The specific topics will depend on the participants' current knowledge versus the desired skills and intended applications for the tools and techniques. Below are the proposed topics. The client is invited to review this list and provide feedback pertaining to desired changes or enhancements.

Basic Knowledge:

- Questions that statistics can and cannot answer
- Samples vs. Parameters
- Overview of three probability distributions: normal, binomial, Poisson
- Measures and indicators of central tendency
- Measures and indicators of variance and variability
- Meaning and significance of "degrees of freedom"
- Factors that influence central tendency and variance
- Rapid estimation techniques for means and standard deviations
- Using MS Excel to calculate mean, median, mode, variance, standard deviation

Advanced Tools and Techniques:

- Correlation, regression, and trend lines
- Multiple correlation
- Using correlation and regression analysis for forecasting
- Precautions in using and interpreting correlation and regression analysis
- Analysis of variance and basic experimental design
- Analyzing categorical and non-parametric data
- Chi-square analysis
- Exercises using MS Excel

Optional Topics:

- Understanding and determining effect size
- Bayesian statistics — overview and examples
- Monte Carlo simulation — overview and examples
- Principle component analysis — overview and examples

Duration: 2 to 3 days. Customized , based on the desired scope and the participants' current skills/knowledge.

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