Module 1
What is Machine Learning?
• Why Machine Learning?
• Machine Learning
• Statistics in Machine Learning
• Supervised and Unsupervised Learning

Module 2
The Machine Learning Process
• Machine Learning Framework
• Machine Learning Approaches
• Machine Learning Techniques
• Machine Learning Algorithms
• Machine Learning Process
• CRISP-DM

Module 3
Exploratory Data Analysis
• Exploratory Data Analysis (EDA)
• Sampling
• Data Profiling
• Descriptive Statistics
• Data Relationships
• Outliers and Anomalies
• Important Variables
• Output and Interpretation
• Feature Selection Methods

Module 4
Models and Algorithms
• The Anatomy of a Model
• Classification
  o Decision Trees
  o Nearest Neighbor
  o Probability – Bayes Classification
  o Neural Networks
• Statistical Methods
• Clustering
• Association
• Anomaly Detection
• Application of Machine Learning Models

Module 5

Model Validation Techniques
• The Validation Process
• Fitting a Model
• Bias/Variance Tradeoff
• Validation Techniques
  o Confidence and Prediction Intervals
  o Statistical Significance
  o Classification Accuracy
  o Prediction Error Methods
  o Hold-out
  o Cross Validation