

## COURSE SYLLABUS

<b>COURSE TITLE:</b>	<b>55162AC Creating and Deploying in Minutes No-Code Predictive Analytics Using Azure Machine Learning Studio</b>
<b>FORMAT:</b>	Instructor-Led
<b>CERTIFICATION EXAMS:</b>	None



This course syllabus should be used to determine whether the course is appropriate for the students, based on their current skills and technical training needs. Course content, prices, and availability are subject to change without notice.

### ELEMENTS OF THIS SYLLABUS ARE SUBJECT TO CHANGE.

#### ABOUT THE COURSE

This course is designed to introduce the participant to the exciting world of predictive analytics built using drag-and-drop with Microsoft Azure Machine Learning Studio, all without coding from your desktop, using your browser.

#### AUDIENCE

The course is targeted towards business analysts, business intelligence developers, and managers interested in exploring the world of predictive analytics for use as a competitive tool.

#### AT COURSE COMPLETION

After completing this course, students will be able to:

- ▶ Understand what machine learning is.
- ▶ Understand the differences between supervised and unsupervised methods.
- ▶ Understand the analytics spectrum.
- ▶ Understand the development methodology.
- ▶ Understand and utilize the Azure Machine Learning Studio interface.
- ▶ Understand and utilize tools for cleaning.
- ▶ Understand the differences between text files and binary files.
- ▶ Understand structures of data.
- ▶ Understand and utilize steps for data cleaning.
- ▶ Understand and utilize feature selection.
- ▶ Understand feature engineering.
- ▶ Understand and utilize regression.
- ▶ Understand and utilize classification.
- ▶ Understand and utilize clustering.
- ▶ Understand anomaly detection.
- ▶ Understand and utilize the Azure Machine Learning Cheat Sheet.
- ▶ Understand and utilize visualizations.
- ▶ Understand data acquisition.
- ▶ Understand data preparation.
- ▶ Understand feature selection.
- ▶ Understand and utilize Train Data.
- ▶ Understand cross validation and comparing regressions.
- ▶ Evaluate solutions and learn from examples.
- ▶ Understand and utilize regression algorithms.
- ▶ Understand and utilize classification algorithms.
- ▶ Understand and utilize clustering algorithms.



- ▶ Understand utilize joined datasets.
- ▶ Understand and utilize Power BI.

### **PREREQUISITES**

Before attending this course, students must have:

- ▶ Working knowledge of their own business data.

### **ADDITIONAL READING**

To help you prepare for this class, review the following resources:

- ▶ None

### **MODULE 1: COURSE OVERVIEW**

This module explains how the class will be structured and introduces course materials and additional administrative information.

#### **Lessons**

- ▶ Introduction
- ▶ Course Materials
- ▶ Facilities
- ▶ Prerequisites
- ▶ What We'll Be Discussing

#### **Lab 1: COURSE OVERVIEW**

- ▶ Creating Your Azure Machine Learning Account

After completing this module, students will be able to:

- ▶ Successfully log into their virtual machine.
- ▶ Have a full understanding of what the course intends to cover.

### **MODULE 2: WHAT IS MACHINE LEARNING?**

In this module, we will explain machine learning and the concepts behind it.

#### **Lessons**

- ▶ Introduction
- ▶ One Methodology
- ▶ Supervised vs. Unsupervised Methods
- ▶ Analytics Spectrum
- ▶ Development Methodology with Azure Machine Learning Studio
- ▶ Be Very Vigilant

#### **Lab 1: WHAT IS MACHINE LEARNING?**

- ▶ None

After completing this module, students will be able to:

- ▶ Understand what machine learning is.
- ▶ Understand the differences between supervised and unsupervised methods.
- ▶ Understand the analytics spectrum.
- ▶ Understand the development methodology.

### **MODULE 3: INTRODUCTION TO AZURE MACHINE LEARNING STUDIO**

In this module, we will explore the Azure Machine Learning Studio interface and walk through the options available.

#### **Lessons**

- ▶ EXPERIMENTS
- ▶ WEB SERVICES



## Creating and deploying in minutes No-Code Predictive Analytics using Azure Machine Learning Studio

- ▶ NOTEBOOKS
- ▶ DATASETS
- ▶ TRAINED MODELS
- ▶ SETTINGS
- ▶ Walkthrough Exercise and Group Discussions

### Lab 1: Introduction to Azure Machine Learning Studio

- ▶ Group Walkthrough Exercise and Discussion: Introduction to Azure Machine Learning Studio
- ▶ Individual Exercise: Introduction to Azure Machine Learning Studio

After completing this module, students will be able to:

- ▶ Understand and utilize the Azure Machine Learning Studio interface.

## MODULE 4: DATA PREPARATION

In this module, we will cover the steps necessary for data cleaning and explore other data preparation techniques.

### Lessons

- ▶ Tools for Cleaning
- ▶ Text Files vs. Binary Files
- ▶ Structures of Data
- ▶ Steps for Data Cleaning
- ▶ Common Cleaning Tasks
- ▶ Feature Selection
- ▶ Feature Engineering
- ▶ Group Discussion

### Lab 1: Data Preparation

- ▶ Group Exercise: Statistical Visualizations
- ▶ Individual Exercise: Remove Duplicate Rows
- ▶ Individual Exercise: Clipping Outliers
- ▶ Individual Exercise: Feature Imbalance
- ▶ Individual Exercise: Feature Selection

After completing this module, students will be able to:

- ▶ Understand and utilize tools for cleaning.
- ▶ Understand the differences between text files and binary files.
- ▶ Understand structures of data.
- ▶ Understand and utilize steps for data cleaning.
- ▶ Understand and utilize feature selection.
- ▶ Understand feature engineering.

## MODULE 5: MACHINE LEARNING ALGORITHMS

In this module, we will explain the different types of algorithms available and their uses.

### Lessons

- ▶ Regression
- ▶ Classification
- ▶ Clustering
- ▶ Anomaly Detection
- ▶ Azure Machine Learning Cheat Sheet
- ▶ Visualizations
- ▶ Group Discussion and Exercises

### Lab 1: Machine Learning Algorithms

- ▶ Group Exercise: Azure Machine Learning Cheat Sheet



- ▶ Group Exercise: Binary Classification Model
- ▶ Group Exercise: Split Data
- ▶ Group Exercise: Unbalanced Datasets
- ▶ Group Exercise: Classification Using Multivariate
- ▶ Group Exercise: Visualize a Clustering Model

After completing this module, students will be able to:

- ▶ Understand and utilize regression.
- ▶ Understand and utilize classification.
- ▶ Understand and utilize clustering.
- ▶ Understand anomaly detection.
- ▶ Understand and utilize the Azure Machine Learning Cheat Sheet.
- ▶ Understand and utilize visualizations.

## **MODULE 6: BUILDING MODELS - EXERCISES**

In this module, we explore the topic of customer propensity (inclinations and tendencies) and how to use Machine Learning to help with this common business question. This is an exercise module which contains both instructor-led and individual exercises.

### **Lessons**

- ▶ Group Discussion 1: Data Acquisition
- ▶ Group Discussion 2: Data Preparation
- ▶ Group Discussion 3: Feature Selection
- ▶ Group Discussion 4: Train Data
- ▶ Group Discussion 5: Cross Validation and Comparing Regressions
- ▶ Group Discussion 6: Results
- ▶ Group Discussion: Evaluate the Solutions – Learn from Examples

### **Lab 1: Building Models - Exercises**

- ▶ Group Exercise and Discussion: Data Acquisition
- ▶ Group Exercise and Discussion: Data Preparation
- ▶ Group Exercise and Discussion: Feature Selection
- ▶ Group Exercise and Discussion: Train Data
- ▶ Group Exercise and Discussion: Cross Validation and Comparing Regressions
- ▶ Individual Exercise: Regression
- ▶ Individual Exercise: Classification
- ▶ Individual Exercise: Clustering

After completing this module, students will be able to:

- ▶ Understand data acquisition.
- ▶ Understand data preparation.
- ▶ Understand feature selection.
- ▶ Understand and utilize Train Data.
- ▶ Understand cross validation and comparing regressions.
- ▶ Evaluate solutions and learn from examples.
- ▶ Understand and utilize regression algorithms.
- ▶ Understand and utilize classification algorithms.
- ▶ Understand and utilize clustering algorithms.

## **MODULE 7: VISUALIZING ANALYTICAL MODELS WITH POWER BI**

In this module, we will explore the visualizations and options available using Power BI.

### **Lessons**

- ▶ What is Power BI?



**Creating and deploying in minutes No-Code Predictive Analytics using Azure Machine Learning Studio**

- ▶ Creating a Power BI Account
- ▶ Deploying to Power BI
- ▶ Visualizations

**Lab 1: Visualizing Analytical Models with Power BI**

- ▶ Individual Exercise: Join Datasets
- ▶ Individual Exercise: Power BI

After completing this module, students will be able to:

- ▶ Understand utilize joined datasets.
- ▶ Understand and utilize Power BI.

