

# DP-100T01: Designing and Implementing a Data Science Solution on Azure

**Course Duration: 32 Hours (4 Days)**

## Overview

The DP-100T01: Designing and Implementing a Data Science Solution on Azure course provides an in-depth exploration of Azure's machine learning capabilities. It covers the entire data science process from Data preparation, Model training, Model deployment, and Model management. Learners will gain practical experience with Azure Machine Learning Service and Azure Machine Learning Studio, learning how to create, train, optimize, and deploy machine learning models at scale. Throughout the course, participants will engage in hands-on labs, such as creating an Azure Machine Learning workspace, running experiments, working with Datastores and datasets, and orchestrating Machine learning workflows with Pipelines. They will also explore real-time and Batch inferencing, ensuring their models can respond promptly or handle large-scale processing. By mastering Hyperparameter tuning, Automated Machine Learning, and Model interpretation, students will be well-equipped to build responsible AI solutions. They'll also delve into the best practices for Monitoring models to maintain optimal performance over time, using tools like Application Insights and Data drift monitoring. This course is ideal for aspiring and existing data scientists looking to harness the power of Azure to streamline and enhance their Machine learning workflows.

## Audience Profile

The DP-100T01 course is designed for professionals seeking to implement data science solutions on Azure's cloud platform.

- Data Scientists
- AI Engineers
- Machine Learning Engineers
- Cloud Solutions Architects
- IT Professionals with a focus on data analytics
- Software Developers interested in data science and machine learning
- Technical Leads managing data science teams
- Data Analysts aiming to advance in machine learning
- DevOps Engineers focused on ML/AI lifecycle management
- Professionals preparing for Azure Data Scientist Associate certification

## Course Syllabus

## **Module 1: Explore and configure the Azure Machine Learning workspace**

- Explore Azure Machine Learning workspace resources and assets
- Explore developer tools for workspace interaction
- Work with compute targets in Azure Machine Learning
- Work with environments in Azure Machine Learning

### **Labs:**

- Explore Azure Machine Learning workspace resources and assets
- Explore developer tools for workspace interaction
- Work with compute targets in Azure Machine Learning
- Work with environments in Azure Machine Learning

## **Module 2: Work with Data in Azure Machine Learning**

- Make data available in Azure Machine Learning

### **Labs:**

- Make data available in Azure Machine Learning

## **Module 3: Experiment with Azure Machine Learning**

- Find the best classification model with Automated Machine Learning
- Track model training in Jupiter notebooks with MLflow

### **Labs:**

- Train a model with the Azure Machine Learning Designer
- Find the best classification model with Automated Machine Learning
- Track model training in notebooks with MLflow

## **Module 4: Train models with scripts in Azure Machine Learning**

- Run a training script as a command job in Azure Machine Learning
- Track model training with MLflow in jobs

### **Labs:**

- Use MLflow to track training jobs
- Track model training with MLflow in jobs

## **Module 5: Optimize model training with Azure Machine Learning**

- Run pipelines in Azure Machine Learning
- Perform hyperparameter tuning with Azure Machine Learning

**Labs:**

- Run pipelines in Azure Machine Learning
- Perform hyperparameter tuning with Azure Machine Learning

## **Module 6: Deploy and consume models with Azure Machine Learning**

- Deploy a model to a managed online endpoint
- Deploy a model to a batch endpoint

**Labs:**

- Log and register models with MLflow
- Compare and evaluate models
- Deploy a model to a managed online endpoint
- Deploy a model to a batch endpoint