

**Designing and Implementing a Data Science Solution on Azure (DP-100)**

**Course Number:** MOC-DP-100
**Duration:** 4 days

**Overview**

This Microsoft official course (DP-100), Designing and Implementing a Data Science Solution on Azure training, teaches data scientists with existing knowledge of Python how to leverage Python and Machine Learning (ML) to manage data ingestion and preparation, model training and deployment, and monitor an ML solution with Azure ML and MLflow. This course prepares students for the [DP-100 exam](https://docs.microsoft.com/en-us/learn/certifications/exams/DP-100) for which every attendee receives a voucher.

**Prerequisites**

Before attending this course, students must have:

* Fundamental knowledge of cloud computing concepts and experience in general data science and Machine Learning tools and techniques, including:
	+ Creating cloud resources in Microsoft Azure
	+ Using Python to explore and visualize data
	+ Training and validating machine learning models using common frameworks like Scikit-Learn, PyTorch, and TensorFlow
	+ Working with containers
	+ To gain these prerequisite skills, participants can take these short, self-paced, free online courses from Microsoft:
		- [Explore Microsoft cloud concepts](https://learn.microsoft.com/en-us/learn/paths/explore-microsoft-azure-cloud-concepts/)
		- [Create machine learning models](https://learn.microsoft.com/en-us/learn/paths/create-machine-learn-models/)
		- [Administer containers in Azure](https://learn.microsoft.com/en-us/learn/paths/administer-containers-in-azure/)
* Taken [AZ-900: Azure fundamentals](file:////training/microsoft-azure-fundamentals) or have equivalent knowledge.

**Materials**

All Microsoft Azure training students receive Microsoft official courseware.

For all Microsoft Official Courses taught in their entirety that have a corresponding certification exam, an exam voucher is included for each participant.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computer for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will be fine.

**Objectives**

* Operate machine learning solutions at cloud scale using Azure Machine Learning
* Manage data ingestion and preparation
* Model training and deployment
* Implement a machine learning solution in Microsoft Azure

**Outline**

* Introduction
* Design a data ingestion strategy for machine learning projects
* Design a machine learning model training solution
* Design a model deployment solution
* Explore Azure Machine Learning workspace resources and assets
* Explore developer tools for workspace interaction
* Make data available in Azure Machine Learning
* Work with compute targets in Azure Machine Learning
* Work with environments in Azure Machine Learning
* Find the best classification model with Automated Machine Learning
* Track model training in Jupyter notebooks with MLflow
* Run a training script as a command job in Azure Machine Learning
* Track model training with MLflow in jobs
* Run pipelines in Azure Machine Learning
* Perform hyperparameter tuning with Azure Machine Learning
* Deploy a model to a managed online endpoint
* Deploy a model to a batch endpoint
* Conclusion