

**End-to-End Data Engineering, ML, AI, and Analytics using Microsoft Fabric**

**Course Number:** MOC-DP-600B
**Duration:** 6 days

**Overview**

This End-to-End Microsoft Fabric Training (a combination of the official Microsoft courses DP-600, DP-603, and DP-604) teaches attendees how to implement and manage enterprise-scale data analytics solutions. Students learn to leverage Microsoft Fabric components like data warehouses and lakes to create analytics assets. Participants also explore real-time analytics with Eventstream and KQL for data visualization and decision-making. The course then dives into data science and machine learning for AI in Microsoft Fabric by using notebooks and Data Wrangler to explore and preprocess data, training machine learning models, and more.

**Prerequisites**

Attendees should have achieved [PL-300 certification](https://learn.microsoft.com/en-us/credentials/certifications/exams/pl-300/) or have similar experience using Power BI for data transformation, modeling, visualization, and sharing. They should also have experience building and deploying data analytics solutions at the enterprise level and be able to:

* Log in to the Azure portal
* Explain and create resource groups
* Understand the concept of streaming data

**Materials**

All Microsoft 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 computers 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 work well.

**Objectives**

* Master end-to-end analytics in Microsoft Fabric
* Navigate the Fabric Admin Center and manage user access
* Utilize Dataflow capabilities for data ingestion and transformation
* Build pipelines using Copy Data and templates. Run and monitor them
* Explore Fabric lakehouses, data ingestion, and SQL querying
* Implement the medallion architecture for data management
* Analyze data stored in the lakehouse using DirectLake in Power BI
* Secure and govern data within the medallion architecture
* Leverage Spark for advanced analytics with notebooks, jobs, and SQL
* Work with Delta Lake and manage delta tables using Spark
* Load and transform data for the data warehouse using T-SQL, Dataflow, and SQL queries
* Query and monitor the data warehouse with SQL editors, Power BI, and dedicated tools
* Build scalable Power BI models with best practices
* Work with real-time data with Eventstream and KQL queries
* Manage data, notebooks, experiments, and models while easily accessing data from across an organization
* Use Microsoft Fabric notebooks to uncover hidden patterns and relationships in datasets
* Use Data Wrangler to clean data, handle missing values, and transform features to build Machine Learning models
* Train models in notebooks, track work in experiments, and manage models with MLflow
* Save and use machine learning models in Microsoft Fabric to generate batch predictions and enrich data

**Outline**

* Introduction to End-to-End Analytics using Microsoft Fabric
	+ Explore end-to-end analytics with Microsoft Fabric
	+ Data teams and Microsoft Fabric
	+ Enable and use Microsoft Fabric
* Administer Microsoft Fabric
	+ Understand the Fabric Architecture
	+ Understand the Fabric administrator role
	+ Manage Fabric security
	+ Govern data in Fabric
* Ingest Data with Dataflows Gen2 in Microsoft Fabric
	+ Understand Dataflows Gen2 in Microsoft Fabric
	+ Explore Dataflows Gen2 in Microsoft Fabric
	+ Integrate Dataflows Gen2 and Pipelines in Microsoft Fabric
* Ingest Data with Spark and Microsoft Fabric Notebooks
	+ Connect to data with Spark
	+ Write data into a lakehouse
	+ Consider uses for ingested data
* Use Data Factory Pipelines in Microsoft Fabric
	+ Understand pipelines
	+ Use the Copy Data activity
	+ Use pipeline templates
	+ Run and monitor pipelines
* Get Started with Lakehouses in Microsoft Fabric
	+ Explore the Microsoft Fabric lakehouse
	+ Work with Microsoft Fabric lakehouses
	+ Explore and transform data in a lakehouse
* Organize a Fabric Lakehouse using Medallion Architecture Design
	+ Describe medallion architecture
	+ Implement a medallion architecture in Fabric
	+ Query and report on data in your Fabric lakehouse
	+ Considerations for managing your lakehouse
* Use Apache Spark in Microsoft Fabric
	+ Prepare to use Apache Spark
	+ Run Spark code
	+ Work with data in a Spark dataframe
	+ Work with data using Spark SQL
	+ Visualize data in a Spark notebook
* Work with Delta Lake tables in Microsoft Fabric
	+ Understand Delta Lake
	+ Create delta tables
	+ Work with delta tables in Spark
	+ Use delta tables with streaming data
* Get Started with Data Warehouses in Microsoft Fabric
	+ Understand data warehouse fundamentals
	+ Understand data warehouses in Fabric
	+ Query and transform data
	+ Prepare data for analysis and reporting
	+ Secure and monitor your data warehouse
* Load data into a Microsoft Fabric data warehouse
	+ Explore data load strategies
	+ Use data pipelines to load a warehouse
	+ Load data using T-SQL
	+ Load and transform data with Dataflow Gen2
* Query a Data Warehouse in Microsoft Fabric
	+ Use the SQL query editor
	+ Explore the visual query editor
	+ Use client tools to query a warehouse
* Monitor a Microsoft Fabric data warehouse
	+ Monitor capacity metrics
	+ Monitor current activity
	+ Monitor queries
* Understand Scalability in Power BI
	+ Describe the significance of scalable models
	+ Implement Power BI data modeling best practices
	+ Configure large datasets
* Create Power BI Model Relationships
	+ Understand model relationships
	+ Set up relationships
	+ Use DAX relationship functions
	+ Understand relationship evaluation
* Use Tools to Optimize Power BI Performance
	+ Use Performance analyzer
	+ Troubleshoot DAX performance by using DAX Studio
	+ Optimize a data model by using Best Practice Analyzer
* Enforce Power BI Model Security
	+ Restrict access to Power BI model data
	+ Restrict access to Power BI model objects
	+ Apply good modeling practices
* Get started with Real-Time Analytics in Microsoft Fabric
	+ What is Synapse Real-Time Analytics?
	+ Understand KQL database and tables
	+ Write queries with KQL
* Use Real-Time Eventstreams in Microsoft Fabric
	+ Main components of Eventstream
	+ Setting up Eventstream
	+ Routing Eventstream data
* Query Data in a KQL Database in Microsoft Fabric
	+ Get started with KQL queries
	+ KQL best practices
	+ Advanced features
* Get started with Data Science in Microsoft Fabric
	+ Understand the data science process
	+ Explore and process data with Microsoft Fabric
	+ Train and score models with Microsoft Fabric
* Explore Data for Data Science with Notebooks in Microsoft Fabric
	+ Explore notebooks
	+ Load data for exploration
	+ Understand data distribution
	+ Check for missing data in notebooks
	+ Apply advanced data exploration techniques
	+ Visualize charts in notebooks
* Preprocess Data with Data Wrangler in Microsoft Fabric
	+ Understand Data Wrangler
	+ Perform data exploration
	+ Handle missing data
	+ Transform data with operators
* Train and Track Machine Learning Models with MLflow in Microsoft Fabric
	+ Understand how to train machine learning models
	+ Train and track models with MLflow and experiments
	+ Manage models in Microsoft Fabric
* Generate Batch Predictions using a Deployed Model in Microsoft Fabric
	+ Customize the model's behavior for batch scoring
	+ Prepare data before generating predictions
	+ Generate and save predictions to a Delta table
* Conclusion