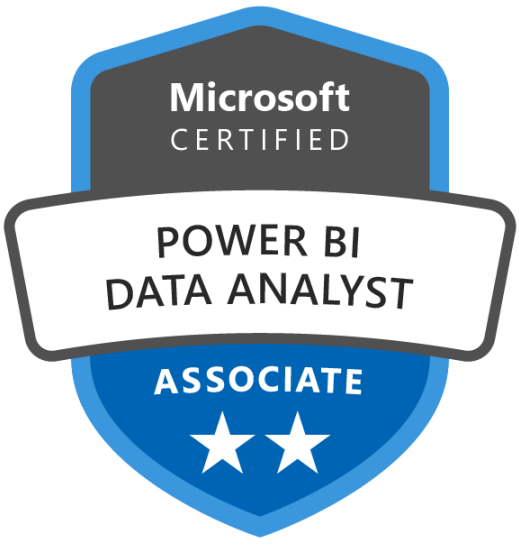
LEARN

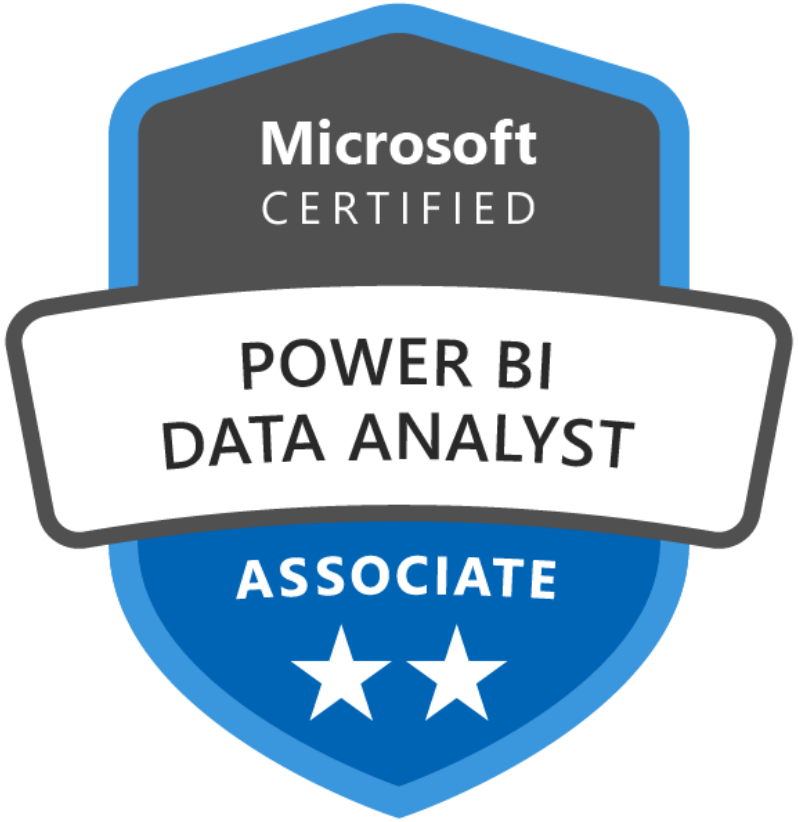
Microsoft Learn

Prepare your exam PL-300: Power BI Data Analyst Associate Guide

Semeh BEN SALEM
Tech Data Lead @Econocom
MCT Regional Lead



Study guide for Exam PL-300: Microsoft Power BI Data Analyst



Purpose of this document

This study guide should help you understand what to expect on the exam PL-300 and includes a summary of the topics the exam might cover and links to additional resources.
The information and materials in this document should help you focus your studies as you prepare for the exam.

Study guide for Exam PL-300: Microsoft Power BI Data Analyst

Audience profile & expertise

As a candidate for this exam, you should deliver actionable insights by working with available data and applying domain expertise. You should:

- Provide meaningful business value through easy-to-comprehend data visualizations.
- Enable others to perform self-service analytics.
- Deploy and configure solutions for consumption.

As a Power BI data analyst, you work closely with business stakeholders to identify business requirements. You collaborate with enterprise data analysts and data engineers to identify and acquire data. You use Power BI to:

- Transform the data.
- Create data models.
- Visualize data.
- Share assets.

You should be proficient at using Power Query and writing expressions by using Data Analysis Expressions (DAX). You know how to assess data quality. Plus, you understand data security, including row-level security and data sensitivity.

Study guide for Exam PL-300: Microsoft Power BI Data Analyst

Measured skills

- Prepare the data (25–30%)
- Model the data (25–30%)
- Visualize and analyze the data (25–30%)
- Deploy and maintain assets (15–20%)

Study guide for Exam PL-300: Microsoft Power BI Data Analyst

As an Azure enterprise data analyst, you collaborate with other roles, such as:

- Solution architects
- Data engineers
- Data scientists
- AI engineers
- Database administrators
- Power BI data analysts

Study guide for Exam PL-300: Microsoft Power BI Data Analyst

Prepare the data (25–30%)

Get data from data sources

- Identify and connect to a data source
- Change data source settings, including credentials, privacy levels, and data source locations
- Select a shared dataset, or create a local dataset
- Choose between DirectQuery, Import, and Dual mode
- Change the value in a parameter

Transform and load the data

- Select appropriate column data types
- Create and transform columns
- Transform a query
- Design a star schema that contains facts and dimensions
- Identify when to use reference or duplicate queries and the resulting impact
- Merge and append queries
- Identify and create appropriate keys for relationships
- Configure data loading for queries

Clean the data

- Evaluate data, including data statistics and column properties
- Resolve inconsistencies, unexpected or null values, and data quality issues
- Resolve data import errors

Study guide for Exam PL-300: Microsoft Power BI Data Analyst

Model the data (25–30%)

Design and implement a data model

- Configure table and column properties
- Implement role-playing dimensions
- Define a relationship's cardinality and cross-filter direction
- Create a common date table
- Implement row-level security roles

Create model calculations by using DAX

- Create single aggregation measures
- Use CALCULATE to manipulate filters
- Implement time intelligence measures
- Identify implicit measures and replace with explicit measures
- Use basic statistical functions
- Create semi-additive measures
- Create a measure by using quick measures
- Create calculated tables

Optimize model performance

- Improve performance by identifying and removing unnecessary rows and columns
- Identify poorly performing measures, relationships, and visuals by using Performance Analyzer
- Improve performance by choosing optimal data types
- Improve performance by summarizing data

Study guide for Exam PL-300: Microsoft Power BI Data Analyst

Visualize and analyze the data (25–30%)

Create reports

- Identify and implement appropriate visualizations
- Format and configure visualizations
- Use a custom visual
- Apply and customize a theme
- Configure conditional formatting
- Apply slicing and filtering
- Configure the report page
- Choose when to use a paginated report

Enhance reports for usability and storytelling

- Configure bookmarks
- Create custom tooltips
- Edit and configure interactions between visuals
- Configure navigation for a report
- Apply sorting & Configure sync slicers
- Group and layer visuals by using the Selection pane
- Drill down into data using interactive visuals
- Configure export of report content, and perform an export
- Design reports for mobile devices

Identify patterns and trends

- Use the Analyze feature in Power BI
- Use grouping, binning, and clustering
- Incorporate the Q&A feature in a report
- Use AI visuals
- Use reference lines, error bars, and forecasting
- Detect outliers and anomalies
- Create and share scorecards and metrics

Study guide for Exam PL-300: Microsoft Power BI Data Analyst

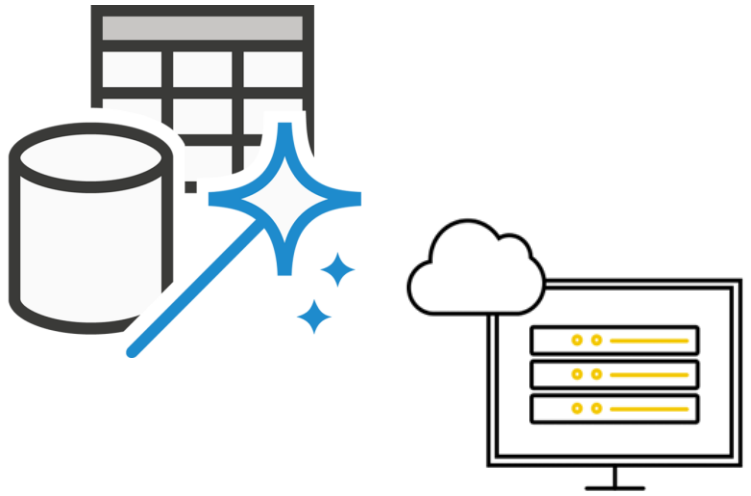
Deploy and maintain assets (15–20%)

Create and manage workspaces and assets

- Create and configure a workspace
- Assign workspace roles
- Configure and update a workspace app
- Publish, import, or update assets in a workspace
- Create dashboards
- Choose a distribution method
- Apply sensitivity labels to workspace content
- Configure subscriptions and data alerts
- Promote or certify Power BI content
- Manage global options for files

Manage datasets

- Identify when a gateway is required
- Configure a dataset scheduled refresh
- Configure row-level security group membership
- Provide access to datasets



Exam PL-300: Microsoft Power BI Data Analyst

Learning materials:

Module I: Get started with Microsoft data analytics

Businesses need data analysis more than ever. In this learning path, you will learn about the life and journey of a data analyst, the skills, tasks, and processes they go through in order to tell a story with data so trusted business decisions can be made. You will learn how the suite of Power BI tools and services are used by a data analyst to tell a compelling story through reports and dashboards, and the need for true BI in the enterprise.

Discover data analysis

Would you like to explore the journey of a data analyst and learn how a data analyst tells a story with data? In this module, you explore the different roles in data and learn the different tasks of a data analyst.

Get started building with Power BI

Learn what Power BI is, including its building blocks and how they work together.

Exam PL-300: Microsoft Power BI Data Analyst

Learning materials:

Module II: Prepare data for analysis with Power BI

You'll learn how to use Power Query to extract data from different data sources, choose a storage mode, and connectivity type. You'll also learn to profile, clean, and load data into Power BI before you model your data.

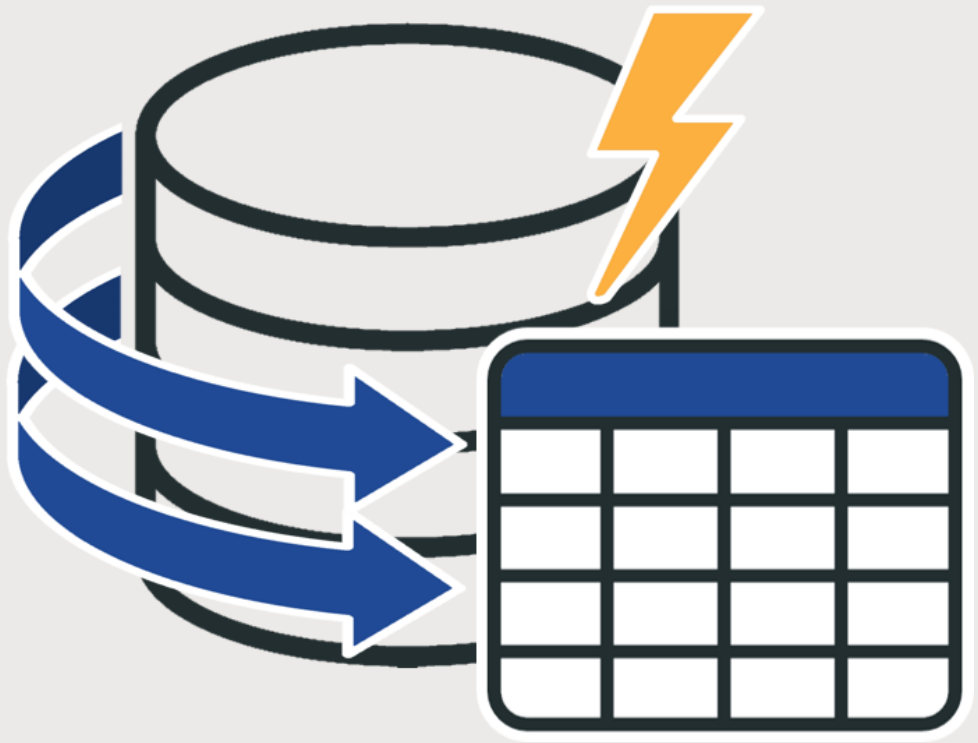
Get data in Power BI

You'll learn how to retrieve data from a variety of data sources, including Microsoft Excel, relational databases, and NoSQL data stores. You'll also learn how to improve performance while retrieving data.

Clean, transform, and load data in Power BI

Power Query has an incredible number of features that are dedicated to helping you clean and prepare your data for analysis. You'll learn how to simplify a complicated model, change data types, rename objects, and pivot data. You'll also learn how to profile columns so that you know which columns have the valuable data that you're seeking for deeper analytics.

Exam PL-300: Microsoft Power BI Data Analyst



Learning materials:

Module III: Model data with Power BI

Learn what a Power BI semantic model is, which data loading approach to use, and how to build out your semantic model to get the insights you need.

Describe Power BI Desktop models

In this module, you'll learn about the Power BI Desktop model structure, star schema design basics, analytics queries, and report visual configuration. This module provides a strong foundation on which you can learn to optimize model designs and add model calculations.

Choose a Power BI model framework

Describe model frameworks, their benefits and limitations, and features to help optimize your Power BI data models.

Design a semantic model in Power BI

The process of creating a complicated semantic model in Power BI is straightforward. If your data is coming in from more than one transactional system, before you know it, you can have dozens of tables that you have to work with. Building a great semantic model is about simplifying the disarray. A star schema is one way to simplify a semantic model. You will learn about why choosing the correct data granularity is important for performance and usability of your Power BI reports. Finally, you learn about improving performance with your Power BI semantic models.

Write DAX formulas for Power BI Desktop models

In this module, you'll learn how to write DAX formulas to create calculated tables, calculated columns, and measures, which are different types of model calculations. Additionally, you'll learn how to write and format DAX formulas, which consist of expressions that use functions, operators, references to model objects, constants, and variables.

Exam PL-300: Microsoft Power BI Data Analyst

Learning materials:

Module III: Model data with Power BI (following)

Learn what a Power BI semantic model is, which data loading approach to use, and how to build out your semantic model to get the insights you need.

Add measures to Power BI Desktop models

In this module, you'll learn how to work with implicit and explicit measures. You'll start by creating simple measures, which summarize a single column or table. Then, you'll create more complex measures based on other measures in the model. Additionally, you'll learn about the similarities of, and differences between, a calculated column and a measure.

Add calculated tables and columns to Power BI Desktop models

By the end of this module, you'll be able to add calculated tables and calculated columns to your semantic model. You'll also be able to describe row context, which is used to evaluated calculated column formulas. Because it's possible to add columns to a table using Power Query, you'll also learn when it's best to create calculated columns instead of Power Query custom columns.

Use DAX time intelligence functions in Power BI Desktop models

By the end of this module, you'll learn the meaning of time intelligence and how to add time intelligence DAX calculations to your model.

Optimize a model for performance in Power BI

Performance optimization, also known as performance tuning, involves making changes to the current state of the semantic model so that it runs more efficiently. Essentially, when your semantic model is optimized, it performs better.

Enforce Power BI model security

Enforce model security in Power BI using row-level security and object-level security.

Exam PL-300: Microsoft Power BI Data Analyst

Learning materials:

Module IV: Build Power BI visuals and reports

Turn data into interactive, actionable insights with Power BI Desktop visuals and reports.

Scope report design requirements

Gathering appropriate inputs to scope your report design requirements involves identifying your audience, determining the suitable report types, and defining their interface and experience requirements. This module provides you with a strong foundation on which to learn how to plan your report design requirements.

Design Power BI reports

Because Power BI includes more than 30 core visuals, it can be challenging for a beginner to select the correct visual. This module will guide you through selecting the most appropriate visual type to meet your design and report layout requirements.

Configure Power BI report filters

Some filtering techniques apply at design time, while others are relevant at report consumption time (in reading view). What matters is that your report design allows report consumers to intuitively narrow down to the data points that interest them.

Exam PL-300: Microsoft Power BI Data Analyst

Learning materials:

Module IV: Build Power BI visuals and reports (following)

Turn data into interactive, actionable insights with Power BI Desktop visuals and reports.

Enhance Power BI report designs for the user experience

The features and capabilities that are covered in this module will help you enhance your reports to make them more refined.

Perform analytics in Power BI

You'll learn how to use Power BI to perform data analytical functions: identify outliers, group data together, bin data for analysis, etc. You'll also learn how to perform time series analysis. You'll work with advanced analytic features of Power BI, such as Quick Insights, AI Insights, and the Analyze feature.

Create paginated reports

Paginated reports allow report developers to create Power BI artifacts that have tightly controlled rendering requirements. Paginated reports are ideal for creating sales invoices, receipts, purchase orders, and tabular data. This module will teach you how to create reports, add parameters, and work with tables and charts in paginated reports.

Exam PL-300: Microsoft Power BI Data Analyst

Learning materials:

Module V: Manage workspaces and datasets in Power BI

Learn how to publish Power BI reports to the Power BI service. You'll also learn how to create workspaces, manage related items, and data refreshes for up-to-date reports. Additionally, implement row-level security to restrict user access to relevant data without the need for multiple reports.

Create and manage workspaces in Power BI

Learn how to navigate the Power BI service, create and manage workspaces and related items, and distribute reports to users.

Manage semantic models in Power BI

With Microsoft Power BI, you can use a single semantic model to build many reports. Reduce your administrative overhead even more with scheduled semantic model refreshes and resolving connectivity errors.

Create dashboards in Power BI

Dashboards allow report consumers to create a single artifact of directed data that is personalized just for them. Dashboards can be composed of pinned visuals that are taken from different reports. Where a Power BI report uses data from a single semantic model, a Power BI dashboard can contain visuals from different semantic models.

Implement row-level security

Row-level security (RLS) allows you to create a single or a set of reports that targets data for a specific user. Learn how to implement RLS by using either a static or dynamic method and how Microsoft Power BI simplifies testing RLS in Power BI Desktop and Power BI service.