ALGONQUIN COLLEGE | Professional Training

PL-300T00

Microsoft Power BI Data Analyst

3 Days

Learn the technical requirements for modelling, visualizing, and analyzing data using with Power BI.

This course covers the various methods and best practices that are in line with business and technical requirements for modeling, visualizing, and analyzing data with Power BI. The course will show how to access and process data from a range of data sources including both relational and non-relational sources. Finally, this course will also discuss how to manage and deploy reports and dashboards for sharing and content distribution.

LEARNING OBJECTIVES

At the end of this course, you will be able to:

- Ingest, clean, and transform data
- Model data for performance and scalability
- Design and create reports for data analysis
- Apply and perform advanced report analytics
- Manage and share report assets

WHO SHOULD ATTEND

- Data professionals and business intelligence professionals who want to learn how to accurately perform data analysis using Power BI.
- Individuals who develop reports that visualize data from the data platform technologies that exist on both in the cloud and on-premises.

PREREQUISITES

- Understanding core data concepts
- Knowledge of working with relational data in the cloud
- Knowledge of working with non-relational data in the cloud
- Knowledge of data analysis and visualization concepts
- Completion of the Microsoft Azure Data Fundamentals course is recommended

COURSE OUTLINE

DAY 1

Discover Data Analysis

- Roles in data and the tasks of a Data Analyst
- From data to business insights with Power BI
- Five types of analysis: Descriptive, Diagnostic, Predictive, Prescriptive, Cognitive

Get Started with Power BI

- How Power BI Desktop, Service, and Mobile work together
- The Power BI workflow: Data sources > Desktop > Service & Mobile
- Building blocks: semantic models and visualizations

Get Data in Power BI

- Connecting to Excel, CSV, SQL, online services
- Storage modes: Import, DirectQuery, Composite (impact on transformations & performance)
- DirectQuery benefits vs. limitations
- Data profiling in Power Query (cardinality, errors)
- Common import errors (timeouts, missing tables/ files, type mismatches)
- Lab: Get Data in Power BI Desktop

Clean, Transform, and Load Data

- Handling nulls, errors, duplicates
- Column/table transformations: pivot/unpivot, merge, append, rename
- Query folding and supported sources
- Dynamic reports with parameters
- Performance tips: reduce cardinality, disable unnecessary loads, use parameters
- Lab: Load and transform queries in Power BI Desktop

Design a Semantic Model in Power BI

- Star schema: fact vs. dimension tables
- Creating/editing relationships and hierarchies
- Circular relationship implications
- Lab: Design a Data Model in Power BI

DAY 2

Add DAX to Semantic Models

- DAX fundamentals: syntax, context
- Calculated columns vs. measures vs. tables
- Implicit, explicit, and quick measures
- Lab: Create calculated tables, columns, and simple measures

Advanced DAX

- Filter context manipulation with CALCULATE()
- Using inactive relationships (USERELATIONSHIP)
- Semi-additive measures and custom date tables
- Time-intelligence functions (YTD, PREVIOUSMONTH)
- Lab: Advanced DAX calculations in Power BI Desktop

Optimize DAX Performance

- Use VAR to simplify and speed up measures
- Performance Analyzer: record interactions, review query/render times, identify bottlenecks
- Analyze query plans for further optimization
- Hands-On: Use Performance Analyzer to tune DAX and visuals

Create Visual Calculations

- Difference between visual calculations and model measures
- Visual calculation interface: adding, templating, hiding calculations
- Axis and Reset parameters
- Lab: Build visual calculations in Power BI Desktop

Design Power BI Reports

- Report structure and objects
- Visual selection, layout best practices
- Formatting: titles, backgrounds, borders, fonts, data labels, tooltips
- Cross-highlighting and drill-down
- Lab: Create and publish a multi-page report

Enhance Reports for User Experience

- Navigation: slicers, filter pane, buttons, shapes, images
- Bookmarks: capture filters, slicers, sort order, drill location
- Accessibility: selection and tab order
- Drill-through scenarios and paginated report considerations
- Lab: Enhance an existing report with advanced features

DAY 3

Perform Advanced Analytics

- Analyze feature for comparisons and outlier detection
- Clustering with scatter charts
- KPI and What-if parameter visuals
- AI Insights in Power Query and the Q&A feature
- Key Influencers and Decomposition Tree visuals
- Lab: Perform data analysis in Power BI

Create and Manage Workspaces

- Workspace types and roles (Admin, Member, Contributor, Viewer)
- Publishing apps, lineage view, feedback comments
- Power BI licensing overview

Manage Semantic Models

- On-premises gateway setup (personal vs. organizational)
- Scheduled and incremental refresh policies
- Model endorsement, data sensitivity labels, usage metrics reports

Create Dashboards

- Dashboard vs. report: pin visuals and live pages
- Themes, mobile layouts, Q&A, Quick Insights (ML-driven)
- Lab: Build a Sales Monitoring dashboard in the Power BI service

Implement Row-Level Security

- Static vs. dynamic RLS configuration with DAX filters
- Lab: Enforce row-level security by region

Explore End-to-End Analytics with Microsoft Fabric

- Fabric's OneLake, Data Factory, Data Engineering, Warehouse, Science, Real-Time, Power BI
- Data team roles and tenant enablement steps

Explore Copilot for Power BI

- Semantic model prep (synonyms, metadata) for Copilot
- Generating measures, visuals, report pages, and summaries via natural-language prompts
- Best practices and limitations of Copilot as an augmentation tool

ACCREDITATION INFORMATION

Upon successful completion of this course, students will receive an Achievement Code to redeem in their Microsoft Learn portal. The instructor will guide the class through using the portal so you can easily track your learning progress and access additional resources.

Please note: The Microsoft Power BI certification exam is not included in this course. However, students can register and take the exam independently through the Microsoft Learn portal. To maximize your chances of success, we recommend having hands-on experience with Microsoft Power BI before attempting the exam.

Microsoft Partner

HOW TO REGISTER

CALL 1.833.282.6852
EMAIL training@algonquincollege.com
ONLINE acprofessionaltraining.com

ALGONQUIN COLLEGE | Professional Training