



Power BI Class Outline

Lesson 1:

Introduction to Power BI

- Power BI Components
 - Power BI Desktop
 - Power BI Service
 - Power BI Mobile
 - Power Query
 - DAX
 - Semantic models
- The Power BI Workflow
 - Connect
 - Transform
 - Model
 - Calculate
 - Visualize
 - Publish and share
- Power BI Interface
 - Report view
 - Data/table view
 - Model view
 - Fields/Data pane
 - Visualizations pane
 - Filters pane

Lesson 2:

Connect to Data

- Common Data Sources
 - Excel workbooks
 - CSV/text files
 - SQL Server
 - MySQL and other relational databases
 - Web and online sources
- Connect to Excel
 - Select a worksheet
 - Select
 - A table
 - Load multiple tables
 - Understand headers and data types
- Connect to Databases
 - Database/server connections
 - Selecting tables and views
 - Importing database data
 - Understanding database credentials

Choose the Right Data

- Fact tables
- Dimension tables
- Transactional data
- Lookup/reference tables
- Manage Data Sources
 - Data source settings
 - Credentials
 - Refresh considerations
 - Privacy settings

Lesson 3:

Power Query: Clean & Transform Data

- Introduction to Power Query
 - Query Editor
 - Queries and steps
 - Applied Steps
 - Query dependencies
- Clean Data
 - Remove unnecessary rows
 - Remove duplicates
 - Remove errors
 - Replace values
 - Fill values
 - Trim and clean text

Data Types

- Text
- Numbers
- Dates
- True/false

Reshape Data

- Rename columns
- Reorder columns
- Split columns
- Merge columns
- Pivot columns
- Unpivot columns

Combine Data

- Merge queries
- Append queries
- Join types

Lesson 4:

Power BI Models

- Data Models
 - Tables
 - Rows and columns
 - Relationships

Keys

- Cardinality

Fact and Dimension Tables

- Transaction/fact tables
- Lookup/dimension tables
- Star schema

Create Relationships

- One-to-many
- One-to-one
- Many-to-many
- Primary and foreign keys

Manage Tables and Columns

- Hide columns
- Rename fields
- Format columns
- Sort by another column
- Set default summarization

Hierarchies

- Date
- Geographic
- Product
- Drill-down

Lesson 5:

Date & Time

Prepare for Time Intelligence

- Continuous dates
- Proper date data types
- Calendar sorting

Create a Date Table

- Date Attributes
 - Year
 - Quarter
 - Month
 - Month Number
 - Week
 - Day
- Calendar vs CalendarAuto
- Create Year/Month/Day columns
- Mark a date table



Excel Class Training

Date Relationships

- Date table to fact table
- Primary date relationship
- Multiple date columns
- Order Date vs. Ship Date

Lesson 6:

DAX, Calculations & Data Analysis

What Is DAX?

- DAX vs. Excel formulas
- DAX vs. Power Query/M

DAX Calculation Types

- Measures
- Calculated columns
- Calculated tables
- Visual calculations

DAX Syntax

- Table names
- Column references
- Measure references
- Operators
- Functions

Basic DAX Functions

- Sum
- Average
- Min/Max
- Count
- DistinctCount

Create Measures

- Total Sales
- Total Orders
- Average Sales
- Total Quantity
- Customer Count

Lesson 7:

Calculated Columns, Tables & Measures

Calculated Columns

- Row-by-row calculations
- When to use columns
- Column storage considerations

Calculated Tables

- Create tables with DAX
- Supporting analysis
- When calculated tables are appropriate

Measures

- Explicit measures
- Measure organization
- Naming conventions
- Formatting measures
- Measures vs. Calculated Columns
- Evaluation context
- Storage
- Performance
- Implicit vs. Explicit Measures
- Automatic aggregation
- Control calculations

Lesson 8:

DAX Aggregations & Iterators

Basic Aggregations

- Sum
- Count
- DistinctCount
- Average

Iterator Functions

- Sumx
- Averagex
- Countx
- Minx/Maxx

Row Context

- Understanding row-by-row evaluation
- Calculated columns
- Iterator behavior

Variables

- Var
- Return

Practical Applications

- Revenue
- Cost
- Profit
- Profit Margin
- Average Order Value

Lesson 9:

Filter Context & DAX

Understand Filter Context

- Filters from visuals
- Filters from slicers
- Filters from relationships
- Filter propagation

Calculate

- Modify filter context
- Add filters

Remove filters

Change filters

Filter Functions

- Filter
- All
- AllExcept
- RemoveFilters / KeepFilters
- AllSelected

Context Transition

- Row context vs. filter context
- Calculate and context transition

Filter Calculations

- Sales by category
- Percentage of total
- Regional contribution
- Customer contribution

Time Intelligence

- Year-to-date
- Quarter-to-date
- Month-to-date
- Prior year

Period Comparisons

- Year-over-year
- Month-over-month
- Previous month
- Previous year

Growth Calculations

- Absolute change
- Percentage change
- Year-over-year growth
- Rolling periods

Date Intelligence Functions

- TotalYTD
- DateAdd
- SamePeriodLastYear
- DatesYTD



Excel Class Training

- Build Trend Measures
 - Current period sales
 - Prior period sales
 - Variance
 - Variance percentage

Lesson 10: DAX Applications

- Core Measures
 - Sales
 - Orders
 - Quantity
 - Customers
 - Profit
- Profitability Measures
 - Revenue
 - Cost
 - Gross Profit
 - Gross Margin
- Ranking Measures
 - Rank products
 - Rank customers
 - Top / Bottom products
- Percentage Measures
 - Percentage of total
 - Category percentage
 - Regional percentage
 - Customer contribution
- Time-Based Measures
 - YTD Sales
 - Prior Year Sales
 - YoY Growth
 - MoM Growth
- Troubleshoot DAX
 - Unexpected totals
 - Incorrect filters
 - Relationship problems
 - Context problems

Lesson 11: Power BI Visualizations

- Choose the Right Visual
 - Bar charts
 - Column charts
 - Line charts
 - Pie/donut charts
 - Tables and matrices
- KPI Visualizations
 - Cards
 - KPI visuals
 - Gauges
 - Key metrics

- Advanced Visualizations
 - Combo charts
 - Waterfall charts
 - Funnel charts
 - Scatter charts
 - Maps
- Tables and Matrices
 - Conditional formatting
 - Subtotals
 - Hierarchies
 - Drill-down
- Visual Formatting
 - Titles
 - Labels
 - Legends
 - Axes
 - Number formatting

Lesson 12: Interactive Reports & Analytics

- Filters
 - Visual filters
 - Page filters
 - Report filters
 - Filter pane
- Slicers
 - Text slicers
 - Date slicers
 - Dropdown slicers
 - Hierarchical slicers
- Visual Interactions
 - Cross-filtering
 - Cross-highlighting
 - Edit interactions
- Drill Features
 - Drill-down
 - Drill-through
 - Tooltips
 - Report page tooltips
- Bookmarks & Navigation
 - Bookmarks
 - Buttons
 - Page navigation
 - Navigation menus

Lesson 13: Report Design that tells the Story

- Design for the Audience
 - Identify the audience
 - Identify business questions

- Determine required metrics
- Define report objectives
- Report Layout
 - Page structure
 - Visual hierarchy
 - Alignment
 - White space
- Dashboard Design Principles
- Color & Formatting
 - Themes
 - Corporate colors
 - Conditional formatting
 - Consistent fonts
- Data Storytelling
 - Identify trends
 - Highlight exceptions
 - Explain variance
 - Present actionable information

Lesson 14: Advanced Features

- Parameters
 - What-if parameters
 - Field parameters
 - Dynamic analysis
- Conditional Formatting
 - Data bars
 - Color scales
 - Icons
 - Rule-based formats
- Dynamic Reports
 - Dynamic titles
 - Dynamic measures
 - Field parameters
 - User-selected metrics
- Visual Calculations



Excel Class Training

Lesson 15:

Power BI Service: Publish & Share

Publish Reports

- Publish from Power BI

- Desktop

- Select a workspace

Power BI Workspaces

- My Workspace

- Organizational workspaces

- Workspace roles

- Manage content

Refresh

- Manual refresh

- Scheduled refresh

- Data source credentials

Dashboards & Apps

- Pin report content

- Create dashboards

- Power BI apps

- Share content

Security

- Workspace permissions

- Sharing considerations

- Row-level security

- introduction

- Data access concepts

Collaboration

- Share reports

- Collaborate

- Export data

- Subscriptions and alerts