

# Applied DAX with Power BI Course Details



Power BI promotes rapid personal BI for essential data exploration and analysis. Chances are, however, that in real life you might need to go beyond just simple aggregations. Business needs might require you to extend your model with calculations. Data Analysis Expressions (DAX) gives you the needed programmatic power to travel the "last mile" and unlock the full potential of Power BI!

## Syllabus

Data Analysis Expressions (DAX) is the expression language of Power BI, Power Pivot, and Analysis Services Tabular. It's very powerful but it's usually perceived as complex requiring a steep learning curve. Taught by an established expert, this two-day class is designed to help you become proficient with DAX. You'll learn practical skills that will help you tackle a wide range of reporting requirements. We'll start with DAX fundamentals, such as calculated columns and measures, and then progress to more advanced concepts, such as variables, filters, time intelligence, advanced relationships, and query optimization. Using the remaining hours of the second day to bring your own DAX puzzles!

Attend this class onsite and get a free paper copy of either the book "Applied DAX with Power BI" by Teo Lachev. Supplementing what you've learned in the class, this book will help you to unleash the full power of DAX!

## Module 1: Introducing DAX

- Data modeling fundamentals
- Understanding storage
- Denormalized vs normalized schemas
- Relationship fundamentals
- Lab 1: Exploring the data model
- Introducing Data Analysis Expressions (DAX)
- Introducing DAX constructs
- Understanding tooling
- Lab 2: Practicing basic DAX

## Module 2: Implementing Calculated Columns and Tables

- Understanding calculated columns
- Understanding row context
- Choosing implementation approach

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Lab 1: Implementing basic calculated columns  
Understanding relationship functions  
Understanding common aggregation functions  
Understanding ranking functions  
Understanding context transition  
Understanding calculated tables  
Understanding role-playing dimensions  
Improving performance with aggregated tables  
Lab 2: Implementing advanced calculated columns and tables

### Module 3: Implementing Measures

Understanding calculated measures  
Understanding filter context  
Lab 1: Implementing basic measures  
Overwriting filter context  
Ignoring filter context  
Filtering data  
Understanding variables  
Grouping data and query projection  
Lab 2: Implementing advanced measures

### Module 4: Implementing Time Intelligence

Understanding Date tables  
Understanding auto-generated date tables  
Lab 1: Implementing basic time intelligence  
Understanding time intelligence functions  
Understanding semi-additive functions  
Lab 2: Implementing time calculations

### Module 5: Advanced DAX

Understanding relationship cardinality  
Understanding active and inactive relationships  
Understanding cross filtering  
Lab 1: Working with relationships  
Understanding data security  
Implementing recursive hierarchies  
Lab 2: Implementing data security  
(organizational security, external security policies)

## Module 6: Optimizing DAX

Identifying performance bottlenecks  
Understanding tools  
Lab 1: Analyzing query execution  
Understanding formula and storage engines  
Optimizing storage  
Understanding query plans  
Best practices for optimizing measures  
Lab 2: Tuning measures

### Audience

Data analysts targeting Power BI or Power Pivot  
BI developers targeting Power BI or Analysis Services Tabular

### Prerequisites

Experience with Power BI modeling  
Experience with Microsoft Excel formulas is preferable

### Hardware and software requirements

Windows 7 or above OS  
Power BI Desktop  
Detailed software setup instructions will be sent before the event

### Instructor



Teo Lachev is a consultant, author, and mentor, with a focus on Microsoft Business Intelligence. Through his Atlanta-based company “Prologika”, a Microsoft Gold Partner in Data Analytics, he designs and implements innovative solutions that unlock the power of data and bring tremendous value to his customers, ranging from small companies to Fortune 50 organizations. Teo has authored and co-authored several SQL Server BI books and he has been leading the Atlanta Microsoft Business Intelligence group since he founded it in 2010. Microsoft has recognized Teo's expertise and contributions to the technical community by awarding him the prestigious Microsoft Most Valuable Professional (MVP) for Data Platform award since 2004.