DATA101: Data Fundamentals for Analytics and Reporting

Price: 1495

Duration:

Delivery Methods: Virtual

Overview

About this Course

This two-day instructor-led course teaches you to design data models for both operational and analytical databases. You start with the fundamentals — what data is, how databases organize it, and how data models enforce structure. From there you design relational databases with properly implemented relationships and normal forms. The course concludes with dimensional modeling: transforming a normalized database into a star schema ready for BI and reporting. All three modules build on a single running scenario, so every concept is applied immediately.

Audience Profile

This course is designed for aspiring data professionals, database developers, BI analysts, and anyone who works with structured data and wants to understand how data models are designed. It is also valuable for professionals transitioning into data engineering, analytics, or data architecture roles.

At Course Completion

Outline

Module 1: Data Foundations

This module introduces the foundational concepts of data, databases, and data models. Students explore what data is (and what it is not), how databases differ from spreadsheets, and how data models organize data for retrieval. The module builds from raw data concepts through database structure to normalization, establishing the vocabulary and mental model needed for relational design in Modules 2 and 3.

Lessons:

- Data
- Databases
- Data Models
- Core Components of a Data Model
- Normalization

Lab:

- Data Model Fundamentals — A small business owner's messy spreadsheet is falling apart. You diagnose what's wrong, identify the entities and data types hiding in the data, and redesign it into properly scoped tables with primary keys.

Module 2: Relationships in the Relational Model

This module teaches students how to design and implement the three relationship types in the relational model. Starting with how to identify relationship types using the two-question method, students progress through implementing one-to-many (foreign keys), many-to-many (intersection tables), and one-to-one relationships. The module concludes with formal normal forms (1NF through BCNF), connecting the intuitive Golden Rule from Module 1 to the formal definitions.

Lessons:

- Introducing Relationships
- Implementing One-to-Many
- Implementing Many-to-Many
- Table Participation
- Implementing One-to-One
- Normal Forms

Lab:

- Relationships in the Relational Model — You take the tables from Lab 1 and connect them — adding foreign keys, resolving many-to-many relationships, understanding participation as a business rule, and normalizing to BCNF. You leave with a complete relational schema.

Module 3: Dimensional Modeling

This module introduces dimensional modeling as the approach for organizing data in analytical databases. Students learn to distinguish operational from analytical databases, understand the transformations that reshape data from one to the other, and design star schemas with properly structured fact and dimension tables. The module covers advanced dimension concepts including slowly changing dimensions, hierarchies, and snowflaking, and culminates in an end-to-end exercise that takes a normalized operational database through the full transformation pipeline to a completed star schema.

Lessons:

- Operational and Analytical Databases
- Transformations
- Dimensional Modeling
- The Star Schema
- Fact Tables
- Dimension Tables
- The Snowflake Schema
- Putting It All Together & Wrap-Up

Lab:

- Analytical Data Models — The operational database works, but it can't answer the owner's business questions efficiently. You reshape the normalized schema into a star schema with fact and dimension tables, choose SCD strategies, and trace the full transformation pipeline.

Prerequisites

No prior database experience is required. Students should be comfortable working with spreadsheets (rows, columns, basic sorting) and have a general understanding of business data (customers, orders, products). Familiarity with SQL is helpful but not required

Course Schedule

Date	Time	Price	Options
07/06/2026	**09:00 AM - 05:00 PM CT**	**1,495.00**	**Buy Now Enroll**
10/05/2026	**09:00 AM - 05:00 PM CT**	**1,495.00**	**Buy Now Enroll**

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