

Data Warehouse/Business Intelligence Lifecycle in Depth

Why Attend

The data warehouse and business intelligence (DW/BI) system continues to be one of the most organizationally complex and technically interesting IT projects. This Kimball University course prepares you to successfully implement your DW/BI environment by distilling the essential elements of the popular Kimball approach as described in the bestselling book, *The Data Warehouse Lifecycle Toolkit, Second Edition*.

This course is packed with specific techniques, guidance and advice from initial project planning through deployment and maintenance. It is taught through a combination of lectures, class exercises, small group workshops, and individual problem solving.

The DW/BI Lifecycle in Depth course is appropriate for anyone who is new to DW/BI and wants to learn a holistic set of best practices from the beginning, or for anyone who has been through a couple projects and wants to refine their methods to better align with the proven, broadly-accepted Kimball approach.

Who Should Attend

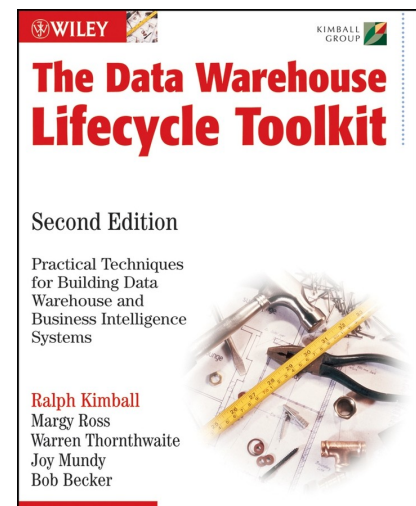
This course is designed for all major roles on a DW/BI project, including project managers, business analysts, data modelers and database administrators, architects, and ETL or BI application designers/developers.

Instructors

Margy Ross and Warren Thornthwaite, co-authors of *The Data Warehouse Lifecycle Toolkit, 2nd Edition*

Course Overview

- Day 1 • Introduction to the Kimball Lifecycle
- Program/Project Planning and Management
 - Business Requirements Analysis
 - Dimensional Modeling Introduction
- Day 2 • Dimensional Modeling continued
- Mature DW/BI System Checkups
- Day 3 • Technical Architecture and System Setup
- Target Physical Database Design
 - ETL System Planning and Design
- Day 4 • ETL System Implementation
- BI Applications
 - DW/BI System Deployment, Support and Growth



DW/BI Lifecycle in Depth: Course Details

DAY 1

Introduction to the Kimball Lifecycle

- Roadmap for creating the DW/BI system

Project Planning and Management

- Readiness factors
- Risk assessment and mitigation plans
- Scoping and business justification
- Team roles and responsibilities
- Program management
- Project plan development and maintenance

Business Requirements Definition

- Program versus project requirements preparation
- Requirements gathering participants
- Techniques for gathering requirements and handling obstacles
- Program/project requirements deliverables
- Requirements prioritization

Dimensional Modeling

- Role of dimensional modeling in the Kimball, Corporate Information Factory (CIF) and hybrid architectures
- Fact and dimension table characteristics
- 4-step process for designing dimensional models
- Transaction fact tables
- Fact table granularity
- Denormalizing dimension table hierarchies
- Degenerate dimensions
- Date and time-of-day dimension considerations
- Dealing with nulls
- Surrogate key for dimensions
- Star versus snowflake schemas
- Centipede fact tables with too many dimensions
- Factless fact tables
- Additive, semi-additive, and non-additive facts
- Workshop: Converting requirements and source data realities into dimensional model
- Consolidated fact tables
- Dimension table role-playing
- Allocated facts at different levels of detail
- Complications with operational header/line data
- Multiple currencies

DAY 2

Dimensional Modeling Continued

- Junk dimensions for misc. transaction indicators
- Periodic and accumulating snapshot fact tables
- Implications of business processes on data architecture
- Enterprise Data Warehouse Bus Architecture and matrix for master data and integration
- Conformed dimensions - identical and shrunken roll-ups
- Exercise: Translate requirements into DW Bus Matrix
- Slowly changing dimensions - type 1, 2, 3 and hybrid techniques for current and point-in-time attribute values
- Mini-dimensions for large, rapidly changing dimensions
- Exercise: Design review to identify common dimensional modeling flaws
- Design review dos and don'ts and mistakes to avoid
- Dimensional modeling process, tasks, and deliverables
- Exercise: Design enhancements to embellish existing design
- Exercise: Convert E-R model into dimensional model

Mature DW/BI System Check-ups

- Symptoms of sponsorship, data, infrastructure, and business acceptance disorders
- Prescribed treatment plans for common maturity problems

DAY 3

Technical Architecture Design

- Architecture concepts
- Topology options - independent data marts, enterprise data warehouse, and conformed data warehouse
- Common components and functionality
 - ETL system
 - Exercise: Processing slowly changing dimensions type 2
 - Presentation servers (RDBMS/OLAP)
 - Real time options - direct to source, ODS, and real time layer
 - BI application types and services
- Creating the architecture plan
- Exercise: Translating requirements into architecture implications

Product Selection and System Setup

- Architecture-based evaluation approach and matrices
- Infrastructure considerations
- Metadata management
- Securing the system

Physical Database Design

- Standards and naming conventions
- Physical model development
- Initial aggregation, indexing and storage plans
- Column-oriented database alternative
- Usage monitoring

Extract, Transformation and Load

- Design the ETL system
- Determine design patterns and implement key subsystems
- Quality assurance and data validation system
- Warehouse operations system
- ETL development workflow
 - Create high-level and detailed ETL schematics
 - Extract to create, filter and transfer source data
 - Cleaning and conforming dimensions and facts

DAY 4

Extract, Transformation and Load continued

- ETL development workflow continued
 - Preparing and delivering dimensions and facts
 - Data integration and master data management
 - Dealing with data quality issues
- Aggregate management
- Load cycle management
- Exercise: "High-level ETL schematic" case study

BI Applications

- BI application types (ad hoc, standard reporting, analytic applications, dashboards) and audiences
- Specification of templates, applications and navigation framework
- Development of applications and BI portal

DW/BI System Deployment and Support

- System deployment
- Communication and documentation
- Training and support
- On-going user, data and system maintenance

DW/BI System Growth

- Planning for growth

