

# Logical Data Modeling

## Learn how to:

- Create logical data models to define business and project requirements
- Explain the purpose, importance, and uses of logical data modeling in the requirements gathering process
- Describe the elements of data flow diagrams and functional decomposition diagrams and their relationship to logical data models
- Explain a logical data model to stakeholders
- Apply logical data modeling to the overall software development life cycle and respond to business management issues



For pre- and post-course assessments, visit [www.esi-intl.com/MyESI](http://www.esi-intl.com/MyESI).

### BABOK® Guide knowledge areas:

Business Analysis Planning and Monitoring  
Elicitation  
Requirements Analysis  
Requirements Management and Communication

### PMBOK® Guide knowledge areas:

Project Integration Management  
Project Scope Management  
Project Quality Management  
Project Communications Management

### ACE CREDIT recommendation:

Undergraduate: 2 credit hours

**PDU:** 21.0      **CEUs:** 2.1      **CDUs:** 21

This course has been updated to reflect the *BABOK® Guide*—Version 2.0.

**IBA® Endorsed Education Provider**



**L**ogical Data Modeling explores business rules, policies and procedures and how they can be modeled effectively. Participants will learn entity relationship diagramming, super and sub-types, attributive and associative entities, and documenting data constraints. The logical data modeling approaches focus on the important requirements of the business that are discovered through significant user involvement during the analysis phase. You will also learn how to create models without being limited by technology or organizational structure.

The ability to communicate the intersection of business processes and information/data needs is key to the success of any software development project. Understanding and explaining user needs is a major challenge and opportunity for the business analyst. The business analyst who understands structured modeling has a distinct advantage in addressing and communicating requirements. And the use of models can greatly increase all stakeholders' understanding of the relevancy of business rules and data management requirements to the project at hand.

**Reminder:** Prior to taking this course, you should have acquired the background as taught in *How to Gather and Document User Requirements*, *Process Modeling Management* and *Use Case Modeling*.

## Course Topics

- 1. Data Flow Diagrams (DFDs) and Functional Decomposition Diagrams (FDDs)**
  - a. Developing DFDs and FDDs
  - b. Identifying the business area
  - c. Modeling essential business processes (FDDs)
  - d. Documenting data use in business processes (DFDs)
  - e. Understanding their relationship to logical data models
- 2. Identifying and Describing the Conceptual Data Model**
  - a. Naming entities, attributes and relationships
  - b. Discovering and defining entities
  - c. Analyzing attributes
  - d. Defining cardinality in relationships
  - e. Understanding concatenated and surrogate unique identifiers
- 3. The Logical Data Model**
  - a. Developing the detailed logical data model
  - b. Identifying and applying entity types
  - c. Modeling with subtypes and supertypes
  - d. Understanding attributive and associative entities
  - e. Understanding multivalued attributes
  - f. Documenting the logical data model
  - g. Analyzing data using the CRUD matrix
- 4. Context-Level Data Flow Diagrams**
  - a. Developing diagrams that represent processes, external agents and data flows
  - b. Defining and naming diagram components
  - c. Drawing divergent and convergent data flows
  - d. Leveling the data flow diagram
  - e. Avoiding common errors in diagramming
- 5. The Transition to OO/UML**
  - a. Understanding the Unified Modeling Language (UML)
  - b. Applying use case, class state and activity diagrams
- 6. Other Key Topics**
  - a. Applying normalization rules
  - b. Understanding the physical data model
  - c. Describing the functions and benefits of CASE tools
  - d. Verifying and presenting models to increase project success