Broward Community College
Course Outline

STATUS: A

COMMON COURSE NUMBER: CIS2342

COURSE TITLE: Designing Data Services and Data Models

CREDIT HOURS: 3

CONTACT HOURS BREAKDOWN:

Lecture/Discussion	48
Lab	
Other	
Contact Hours/Week	3

CATALOG COURSE DESCRIPTION:
This course teaches students to analyze business requirements to determine data storage and data access requirements. Students will learn to build data models and design data services.

Prerequisite: COP1334C (with a grade of C or higher)

Corequisite: None

UNIT TITLES:
1. Course Overview
2. Solution Design Process
3. Using a Conceptual Design for Data Requirements
4. Deriving a Logical Data Design
5. Normalizing the Logical Data Design
6. Deriving a Physical Data Design
7. Implementing Data Integrity
8. Designing Data Services
9. Data Storage Considerations

LAST REVIEW **Academic Year 2003-2004** NEXT REVIEW **Academic Year 2008-2009**
Interim Revision Dates:

I. Course Overview:

Upon successful completion of this course, the students should be able to derive conceptual data requirements from business requirements, develop entity/relationship (ER) models, normalize a logical data model, create an optimized physical data model, select the appropriate type and location of data integrity requirements to implement, and select appropriate data access and data storage technologies for a solution.

II. Units:

Unit 1. 1. Course Overview

General Outcome:

1.0 The students should be able to describe the scope of the course, as it relates to their field of study.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

1.1 Describe how the course content fits into the Database Technology curriculum.

1.2 Describe how they will use the case study to apply the principles they will learn in the course.

Unit 2. 2. Solution Design Processes

General Outcome:

2.0 The students should be able to discuss the design process.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

2.1 Explain design processes as they pertain to business solutions and data-centric solutions.

2.2 Explain the concepts and benefits of services-based design.

2.3 Identify phases in the project life cycle.

Unit 3. 3. Using a Conceptual Design for Data Requirements

General Outcome:

3.0 The students should be able to apply conceptual design principles.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

3.1 Describe the information investigation process.

3.2 Determine functional data requirements from use cases.

3.3 Identify non-functional requirements that will affect a solution’s design.

Unit 4. 4. Deriving a Logical Data Design

General Outcome:

4.0 The students should be able to derive a logical design from their conceptual design.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

4.1 Analyze data requirements to determine data entities and attributes.

4.2 Analyze data entities and attributes to determine their relationship.

4.3 Determine the cardinality and existence characteristics of a relationship.

4.4 Create an entity/relationship diagram.

Unit 5. 5. Normalizing the Logical Data Design

General Outcome:

5.0 The students should be able to normalize a database.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

5.1 Use primary and foreign keys to implement relationships between entities.

5.2 Explain the benefits of normalizing entities.

5.3 Normalize a table to third normal form.

Unit 6. 6. Deriving a Physical Data Design

General Outcome:

6.0 The students should be able to derive a physical design from their logical design.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

6.1 Derive a physical data design for tables and fields from a logical data design.

6.2 Analyze data usage characteristics to optimize a physical data design.

6.3 Determine methods for implementing relationships in a physical data design.

6.4 Identify different optimization techniques.

6.5 Determine the proper criteria for optimizing a physical data design.

Unit 7. 7. Implementing Data Integrity

General Outcome:

7.0 The students should be able to implement data integrity.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

7.1 Identify business rules that relate to data integrity.

7.2 Identify the data integrity requirement type to which a business rule applies.

7.3 Evaluate and determine a location for implementing data integrity.

7.4 List implementation techniques for a given data integrity requirement.

Unit 8. 8. Designing Data Services

General Outcome:

8.0 The students should be able to design data services.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

8.1 Determine the role of data services for a business solution.

8.2 Describe considerations fro distributing data access technologies.

8.3 List the primary considerations for choosing a data access technology.

8.4 List and describe the primary data access technologies.

8.5 Determine the appropriate data access technology for a business solution.

Unit 9. 9. Data Storage Considerations

General Outcome:

9.0 The students should be able to differentiate between the various data store software and hardware technologies.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

9.1 Identify different types of hardware and software technologies for implementing a data store.

9.2 Choose the appropriate of hardware and software technologies for implementing a data store.