COMS-161: INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS

Justification for this inactivation request
Course has not been offered in over three years.

Effective Term
Fall 2026

CC Approval
10/03/2025

AS Approval
10/09/2025

BOT Approval
10/16/2025

COCI Approval
02/23/2026

SECTION A - Course Data Elements

CB04 Credit Status
Credit - Degree Applicable

Discipline

Minimum Qualifications	And/Or
Computer Information Systems (Any Degree and Professional Experience)	

Subject Code
COMS - Computer Studies
Course Number
161

Department
Computer Studies

Division
Career Education and Workforce Development (CEWD)

Full Course Title
Introduction to Database Management Systems

Short Title
Intro Database Mgmt Systems

CB03 TOP Code
0702.10 - *Software Applications

CB08 Basic Skills Status
NBS - Not Basic Skills

CB09 SAM Code
C - Clearly Occupational

SECTION B - Course Description

Catalog Course Description

This course provides the students with an introduction to the core concepts in data and information management. It is centered around the core skills of identifying organizational information requirements, modeling them using conceptual data modeling techniques, converting the conceptual data models into relational data models and verifying its structural characteristics with normalization techniques, and implementing and utilizing a relational database using an industrial-strength database management system. The course will also include coverage of basic database administration tasks and key concepts of data quality and data security. In addition to developing database applications, the course helps the students understand how large-scale packaged systems are highly dependent on the use of Database Management Systems (DBMSs). Building on the transactional database understanding, the course provides an introduction to data and information management technologies that provide decision support capabilities under the broad business intelligence umbrella.

SECTION C - Conditions on Enrollment

Open Entry/Open Exit

No

Repeatability

Not Repeatable

Grading Options

Letter Grade or Pass/No Pass

Allow Audit

Yes

Requisites

SECTION D - Course Standards

Is this course variable unit?

No

Units

3

Lecture Hours

54

Outside of Class Hours

108

Total Contact Hours

54

Total Student Hours

162

Distance Education Approval

Is this course offered through Distance Education?

Yes

Online Delivery Methods

DE Modalities	Permanent or Emergency Only?
Entirely Online	Permanent
Hybrid	Permanent
Online with Proctored Exams	Permanent

SECTION E - Course Content

Student Learning Outcomes

	Upon satisfactory completion of the course, students will be able to:
1.	Create a functional database and generate reports.

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1.	Define the role of databases and database management systems in managing organizational data and information.
2.	Understand the fundamentals of basic file organization techniques.
3.	Design a relational database so that it is at least in 3rd Normal Form
4.	Implement a relational database design using an industrial-strength database management system, including the principles of data type selection and indexing.
5.	Use the data definition, data manipulation, and data control language components of Structured Query Language (SQL) in the context of one widely used implementation of the language.
6.	Describe the role of databases and database management systems in the context of enterprise systems.
7.	Describe the key principles of data security and identify data security risks and violations in data management system design.
8.	Compare the difference between online transaction processing (OLTP) and online analytic processing (OLAP), and the relationship between these concepts and business intelligence, data warehousing, and data mining.

Course Content

1. Database approach
2. Types of database management systems
3. Basic file processing concepts
4. Physical data storage concepts
5. File organizations techniques
6. Conceptual data model
    a. Entity-relationship model
    b. Object-oriented data model
    c. Specific modeling grammars
7. Logical data model
    a. Hierarchical data model
    b. Network data model
    c. Relational data model
        i. Relations and relational structures
        ii. Relational database design
8. Mapping conceptual schema to a relational schema
9. Normalization
10. Physical data model
    a. Indexing
    b. Data types
11. Database languages
    a. SQL, Data Definition Language (DDL), Data Manipulation Language (DML), and Data Control Language (DCL)
12. Data and database administration
13. Transaction processing
14. Using a database management system from an application development environment
15. Use of database management systems in an enterprise system context
16. Data / information architecture
17. Data security management
    a. Basic data security principles
    b. Data security implementation
18. Data quality management
    a. Data quality principles
    b. Data quality audits
    c. Data quality improvement
19. Business intelligence

a. On-line analytic processing
b. Data warehousing
c. Data mining
d. Enterprise search

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Lecture	
Observation and Demonstration	
Other	Projects

Online Adaptation

Types	Examples of learning activities
Activity	
Directed Study	
Discussion	
Group Work	
Individualized Instruction	
Journal	
Lecture	

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards
Chat Rooms
Discussion Boards
E-mail Communication
Telephone Conversations
Video or Teleconferencing

Student-Initiated Online Contact Types

Chat Rooms
Discussions
Group Work

Course design is accessible

Yes

Methods of Evaluation

Methods of Evaluation

Types	Examples of classroom assessments
Exams/Tests	
Quizzes	
Other	Evaluation will include hands-on projects and a combination of examinations, presentations, discussions, or problem-solving assignments.

Assignments

Reading Assignments

Group work: Students actively participate in pairs and/or groups to complete exercises.

Writing Assignments

Practice: Students actively engage in interactive exercises to practice the material.

Outside-of-Class Assignments
Practical: Students apply the learned concepts and skills through a variety of hands-on and audio exercises.

SECTION F - Textbooks and Instructional Materials

Material Type
Textbook

Author
Elmasri R. & Navathe, S.

Title
Fundamentals of Database Systems

Edition/Version
7th

Publisher
Pearson

Year
2016

Material Type
Textbook

Author
Kroenke, D. M. & Auer, D.

Title
Database Concepts

Edition/Version
9th

Publisher
Pearson

Year
2020

SECTION G - Diversity, Equity and Inclusivity

Course Codes (Admin Only)

CB10 Cooperative Work Experience Status
N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status
Y - Credit Course

CB13 Special Class Status
N - The Course is Not an Approved Special Class

CB23 Funding Agency Category
Y - Not Applicable (Funding Not Used)

CB24 Program Course Status
Program Applicable

Allow Pass/No Pass
Yes

Only Pass/No Pass
No