

CSCI 4325 - DATABASE MANAGEMENT SYSTEMS

CREDIT HOURS: 3
PREREQUISITES: CSCI 3302
GRADE REMINDER: Must have a grade of C or better in each prerequisite course.

CATALOG DESCRIPTION

Study of database management systems. Design and implementation of applications using database management systems.

PURPOSE OF COURSE

The purpose of this course is to provide a broad knowledge of the fundamental concepts of database processing. This knowledge should enable the student to know enough of the current technology to evaluate the applications of database management systems (DBMS) in given situations, to participate in the design of databases, to understand how application programs interface with processing, recovery, and security. Students should acquire a knowledge of relational database models and the usage of relational languages.

EDUCATIONAL OBJECTIVES

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

1. Demonstrate a broad knowledge of the fundamental concepts of database technology.
2. Evaluate the applications of database management systems, and to participate in the design of databases.
3. Describe the main issues of database administration and control.
4. Identify current trends of database management systems.
5. Design and implement a functional limited-aspect database management system.

COURSE CALENDAR

This course meets for a minimum of 37.5 lecture contact hours during the semester. Students have significant weekly reading assignments. Students are expected to complete 5-6 homework assignments, 2-3 in-class assignments, a major project and make 1-3 major class presentations during the phases of the project, and 2-3 periodic exams in addition to the final exam. Students are expected to prepare for any class assignments or quizzes over the material covered in class or in the reading material. Successful completion of these activities requires at a minimum six additional hours of outside of classroom work each week.

CONTENT

Hours

Databases, Files Overview	4
The Relational model	13
Architecture, DDL, DML	
Normalization	3
Database design	12

Conceptual, Logical, Physical, Security
Project

Database administration and control.....	4
Current topics.....	6
Distributed databases	
Client-server databases	
Data warehouses	
Object-oriented databases	
Exams (plus final).....	3
	TOTAL 45

REFERENCES

Connolly, T. and Begg, C., Database Systems: A Practical Approach to Design, Implementation, and Management, 6th Ed., Addison-Wesley, 2015.

Date, C. J., An Introduction to Database Systems, 8th Ed., Addison-Wesley, 2004.

Elmasri, R. and Navayhe, S. B., Fundamentals of Database Systems, 7th Ed., Addison-Wesley, 2016.

Kifer, Bernstein, and Lewis, Database Systems: An Application-Oriented Approach, 2nd Ed., Addison-Wesley, 2005.

Kroenke, D. M. Auer, D.J. , Database Processing: Fundamentals, Design, and Implementation, 14th Ed., Prentice Hall, 2016.

Ricardo, C.M., Databases Illuminated, 2nd Ed., Jones and Bartlett, 2011.

Coronel, C., Morris, C., Database Systems: Design, Implementation, and Management, 11th Ed., Course Technology, 2015.