

## CUMBERLAND COUNTY COLLEGE

Course: CS 210 Database Management

Credits: 4

Prerequisites: CS 112

Description:

This course introduces students to the fundamentals of databases and data analysis, emphasizing that the key to successful database implementation is in proper design to fit within a larger strategic view of the data environment. Students will learn to analyze and model data (i.e., design), then create and utilize a database. Students will use SQL as a query language, along with other database management tools. The labs, projects and exercises incorporate real-world business cases to help students develop database and system analysis skills.

Learning Outcomes

At the completion of this course, students will be able to:

- Demonstrate knowledge of fundamental data design and relational database concepts.
- Demonstrate understanding of the stages of the Systems Development Life Cycle and the Database Life Cycle.
- Critically evaluate information by analyzing data requirements for a business case.
  - Design appropriate database tables and queries for a business case.
- Use computer and database management skills to implement a solution to a business case using a database management system.

Topical Outline

- Intro concepts:
  - From file(s) to Database Managers
  - Components of a Database System
- Data Models
  - Discovering Business Rules
  - Comparison of Data Models
  - ER modeling introduced
- The Relational Database Model
  - Logical View: Characteristics of Relational Tables

Keys: determination, functional dependence  
Integrity  
Relational Set Operations; Joins  
Relationships; designing for M:N  
Data Redundancy issues  
Indexes (*indices*)  
Dr. Codd's RDB Rules

- ER Modeling
- Normalization of Data  
1NF, 2NF, 3NF  
BCNF, 4NF
- SQL SELECT  
  
Queries to extract and aggregate data  
Inner Joins  
Outer Joins  
Subqueries: WHERE, HAVING, FROM
- Advanced Data Modeling Concepts  
Selecting Primary Keys  
Design Case Studies  
Data Modeling Checklist
- Database Design  
Systems Development Life Cycle
- Project Presentations & Review

Text:

Peter Rob & Carlos Coronel *Database Systems, 10<sup>th</sup> ed.*  
Cengage/Course Technology: 2013 ISBN-13: 9781111969608

Note: 9<sup>th</sup> edition also acceptable:

Peter Rob & Carlos Coronel *Database Systems, 9<sup>th</sup> ed.*  
Cengage/Course Technology: 2010 ISBN-13: 9780538748841

Student Assessment

(Assessment may be accomplished through projects, portfolios, exams, presentations and/or papers)

### Academic Integrity

Plagiarism is cheating. Plagiarism is presenting in written work, in public speaking, and in oral reports the ideas or exact words of someone else without proper documentation.

Whether the act of plagiarism is deliberate or accidental [ignorance of the proper rules for handling material is no excuse], plagiarism is, indeed, a “criminal” offense.

As such, a plagiarized paper or report automatically receives a grade of **ZERO** and the student may receive a grade of **F** for the semester at the discretion of the instructor.

### Tutoring & Project Assist

If you are having difficulty with work in this class tutoring is available through the Center for Academic & Student Success. If you think that you might have a learning disability, contact Project Assist at 856.691.8600 x 1282 for information on assistance that can be provided to eligible students.

### **Before Withdrawing From This Course**

If a student experiences adverse circumstances while enrolled in this course and considers withdrawing, s/he should see an advisor (division or advisement center) **BEFORE** withdrawing from the class. A withdrawal may cause harmful repercussions to completion rate standards and overall GPA which can limit or eliminate future financial aid in addition to causing academic suspension.