

JEFFERSON COLLEGE
COURSE SYLLABUS

CIS236
SQL AND DATABASE DESIGN

3 Credit Hours

Revised by:
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CIS236 SQL and Database Design

I. CATALOGUE DESCRIPTION

- A. Pre-requisite and/or Co-requisite: Reading Proficiency
- B. 3 Credit Hours
- C. SQL and Database Design covers the concepts of SQL and relational databases. Students will learn how to create tables, enter and manipulate data, query data in tables, and format the results using SQL commands. Students should be familiar with PC software. This course includes extensive laboratory time, and additional laboratory time may be required. (S)

II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

Describe the purpose and contents of an entity-relationship model	Quizzes, Examinations, and/or In-Class Projects/Worksheets
Explain the steps in the normalization process	Quizzes, Examinations, and/or In-Class Projects/Worksheets
Describe the differences between personal and client/server databases	Quizzes, Examinations, and/or In-class Projects/Worksheets
Use Structured Query Language (SQL) commands to create, modify, and drop database tables	Quizzes, Examinations, and/or In-Class Projects/Worksheets
Explain user schemas	Quizzes, Examinations, and/or In-Class Projects/Worksheets
Define database tables	Quizzes, Examinations, and/or In-Class Projects/Worksheets
Create database tables	Quizzes, Examinations, and/or In-Class Projects/Worksheets
Debug SQL commands	Quizzes, Examinations, and/or In-class projects/worksheets
View information about your database tables using data dictionary views	Quizzes, Examinations, and/or In-class projects/worksheets

Modify and delete database tables	Quizzes, Examinations, and/or In-class projects/worksheets
Run a script to create database tables automatically	Quizzes, Examinations, and/or In-class projects/worksheets
Insert data into database tables	Quizzes, Examinations, and/or In-class projects/worksheets
Create database transactions and commit data to the database	Quizzes, Examinations, and/or In-class projects/worksheets
Create search conditions in SQL queries	Quizzes, Examinations, and/or In-class projects/worksheets
Update and delete database records and truncate tables	Quizzes, Examinations, and/or In-class projects/worksheets
Create and use sequences to generate surrogate key values automatically	Quizzes, Examinations, and/or In-class projects/worksheets
Grant and revoke database object privileges	Quizzes, Examinations, and/or In-class projects/worksheets
Write SQL queries to retrieve data from a single database table	Quizzes, Examinations, and/or In-class projects/worksheets
Create SQL queries that perform calculations on retrieved data	Quizzes, Examinations, and/or In-class projects/worksheets
Create nested SQL queries	Quizzes, Examinations, and/or In-class projects/worksheets
Combine query results using set operators	Quizzes, Examinations, and/or In-class projects/worksheets
Create and use database views	Quizzes, Examinations, and/or In-class projects/worksheets

III. OUTLINE OF TOPICS

- A. Client/Server Databases
 - 1. Overview of relational databases
 - 2. Database design
 - 3. Database systems
 - 4. The databases cases

- B. Creating and Modifying Database Tables
 - 1. Introduction to SQL
 - 2. User accounts
 - 3. Defining database tables
 - 4. Data Types
 - 5. Constraints
 - 6. Creating database tables
 - 7. Viewing information about tables
 - 8. Modifying and deleting database tables

- C. Using SQL queries to insert, update, delete, and view data
 - 1. Using scripts to create database tables
 - 2. Inserting data into tables
 - 3. Creating transactions and committing new data
 - 4. Creating search conditions in SQL queries
 - 5. Updating and deleting existing table rows
 - 6. Sequences
 - 7. Database object privileges
 - 8. Retrieving data from a single database table
 - 9. Using calculations in SQL queries
 - 10. SQL group functions
 - 11. Formatting output
 - 12. Joining multiple tables
 - 13. Creating nested queries
 - 14. Using set operators to combine query results
 - 15. Creating and using database views

IV. METHOD(S) OF INSTRUCTION

- A. Lectures
- B. Hands-On Practice Sessions in Lab
- C. Discussion

V. REQUIRED TEXTBOOK(S)

Conger, Steve; *Hands-On Database*, Pearson Education, (current edition)

VI. REQUIRED MATERIALS

Jump-Drive, Writing Utensil

VII. SUPPLEMENTAL REFERENCES

Online Resources (including student files) and other reference material.

VIII. METHOD OF EVALUATION

- A. Examinations 50%
- B. Assignments/Homework 40%
- C. Quizzes 10%

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Technology Center 101; phone 636-481-3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website, <http://www.jeffco.edu>).

XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases

participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.