

CS 81.62 Course Outline as of Fall 2011**CATALOG INFORMATION**

Dept and Nbr: CS 81.62 Title: SQL/RELATIONAL DATABASES

Full Title: Relational Database Concepts and Structured Query Language

Last Reviewed: 2/28/2022

| Units | | Course Hours per Week | | Nbr of Weeks | Course Hours Total | |
|---------|------|-----------------------|------|--------------|--------------------|-------|
| Maximum | 3.00 | Lecture Scheduled | 3.00 | 17.5 | Lecture Scheduled | 52.50 |
| Minimum | 3.00 | Lab Scheduled | 0 | 4 | Lab Scheduled | 0 |
| | | Contact DHR | 0 | | Contact DHR | 0 |
| | | Contact Total | 3.00 | | Contact Total | 52.50 |
| | | Non-contact DHR | 0 | | Non-contact DHR | 0 |

Total Out of Class Hours: 105.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

Catalog Description:

This course introduces relational database concepts and techniques with a focus on web programmers who want to build data centric applications. Students will learn the syntax and use of Structured Query Language (SQL) and how to install and run a web-based relational database server such as MySQL and how to design and program database-enabled applications.

Prerequisites/Corequisites:

Course Completion of CS 50.11A

Recommended Preparation:

Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:**Schedule of Classes Information:**

Description: This course introduces relational database concepts and techniques with a focus on web programmers who want to build data centric applications. Students will learn the syntax and use of Structured Query Language (SQL) and how to install and run a web-based relational database server such as MySQL and how to design and program database-enabled applications. (Grade or P/NP)

Prerequisites/Corequisites: Course Completion of CS 50.11A

Recommended: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

| | | | |
|----------------------|----------------------|----------------------|-----------|
| AS Degree: | Area | Effective: | Inactive: |
| CSU GE: | Transfer Area | Effective: | Inactive: |
| IGETC: | Transfer Area | Effective: | Inactive: |
| CSU Transfer: | Transferable | Effective: Fall 2011 | Inactive: |
| UC Transfer: | | Effective: | Inactive: |

CID:

Certificate/Major Applicable:

Certificate Applicable Course

COURSE CONTENT

Outcomes and Objectives:

Upon completion of the course, students will be able to:

1. Describe a relational database.
2. Install and configure a web/database server environment.
3. Implement SQL statements using data design, definition, and manipulation techniques.
4. Implement stored procedures.
5. Develop complex data analysis queries in SQL.
6. Apply transaction and database administration concepts.

Topics and Scope:

1. Definition of "relational database"
 - a. Contrast relational database and file-based databases
 - b. History of relational database theory
 - c. Client/server computing
 - d. History and current options in the database market
 - e. MySQL, the SQL language, and understanding tables
2. Database set-up
 - a. Installing and configuring MySQL with Apache, Hypertext Preprocessor (PHP), and PHPMySQL
 - b. Storage engines Index Sequential Access Method (ISAM) and Inno Database (InnoDB)
3. SQL basics: Syntax, Data Manipulation Language (DML), Data Definition Language (DDL), tables, select, distinct, where, and/or, order by, query and reporting in SQL
4. Data design
 - a. Data normalization theory
 - b. Primary key and foreign keys
 - c. Entity and relationship diagramming

5. Data definition
 - a. Create database, create table and create index
 - b. Synonyms, views, stored procedures
6. Data manipulation: insert, update and delete
7. Stored procedures: programming in the database
8. Web database programming
 - a. Accessing SQL through PHP
 - b. Building a simple create, read, update, delete data application using Hypertext Markup Language (HTML), Cascading Style Sheets (CSS) and PHP.
9. Data analysis: SQL functions, unions, group by, and complex joins
10. Web data analysis: creating data analysis web applications using Python
11. Transactions: theory and practice for simple and distributed transactions using SQL
12. Database administration: partitioning, replication, enterprise management tools, backup and recovery
13. Using Extensible Markup Language (XML) with SQL, accessing local SQL services through web browsers, and accessing SQL through JavaScript

Assignment:

1. 8 - 12 SQL problem solving projects
2. 3 - 5 exams
3. Approximately 25 pages per week of reading

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Writing
0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

SQL problem solving projects

Problem solving
50 - 70%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations
0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Objective examinations (multiple choice, true false, matching, completion, etc.)

Exams
30 - 50%

Other: Includes any assessment tools that do not logically fit into the above categories.

Participation and attendance

Other Category
0 - 10%

Representative Textbooks and Materials:

Learning MySQL, by Tahaghoghi, Seyed and Williams, Hugh. O'Reilly Media: 2006.