

CS 81.62 Course Outline as of Fall 2016**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, design and administration. Students will learn the syntax and use of Structured Query Language (SQL) and how to install and run a relational database server such as MySQL and how to design relational database for applications.

Prerequisites/Corequisites:**Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100

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

Description: This course introduces relational database concepts, design and administration. Students will learn the syntax and use of Structured Query Language (SQL) and how to install and run a relational database server such as MySQL and how to design relational database for applications. (Grade or P/NP)

Prerequisites/Corequisites:

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:
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CSU Transfer:	Transferable	Effective:	Fall 2011	Inactive:
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UC Transfer:	Effective:	Inactive:
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CID:

Certificate/Major Applicable:

Both Certificate and Major Applicable

Approval and Dates

Version:	02	Course Created/Approved:	5/2/2011
Version Created:	7/7/2015	Course Last Modified:	6/4/2022
Submitter:	Dave Harden	Course last full review:	2/28/2022
Version Status:	Approved (Changed Course)	Prereq Created/Approved:	2/28/2022
Version Status Date:	11/9/2015	Semester Last Taught:	Spring 2022
Version Term Effective:	Fall 2016	Term Inactive:	Fall 2022

COURSE CONTENT

Student Learning Outcomes:

At the conclusion of this course, the student should be able to:

1. Write Structured Query Language (SQL) statements, including Data Definition Language (DDL) queries and Data Manipulation Language (DML)
2. Design and develop a relational database

Objectives:

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

1. Describe a relational database
2. Install and configure a 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
7. Define and manage access controls for relational databases

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 server set-up
 - a. Installing and configuring MySQL
 - 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. Data analysis: SQL functions, unions, group by, and complex joins
9. Web data analysis: creating data analysis web applications using Python
10. Transactions: theory and practice for simple and distributed transactions using SQL
11. Database administration: partitioning, replication, enterprise management tools, backup and recovery
12. Security concepts of relational databases
 - a. User management
 - b. Access controls
 - c. Data integrity

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:

Database Systems: A Practical Approach to Design, Implementation, and Management (6th).
Connolly, Thomas and Begg, Carolyn. Pearson: 2015

OTHER REQUIRED ELEMENTS

STUDENT PREPARATION

Matric Assessment Required:	E	Requires English Assessment
Prerequisites-generate description:	NP	No Prerequisite
Advisories-generate description:	A	Auto-Generated Text
Prereq-provisional:	N	NO
Prereq/coreq-registration check:	N	No Prerequisite Rules Exist
Requires instructor signature:	N	Instructor's Signature Not Required

BASIC INFORMATION, HOURS/UNITS & REPEATABILITY

Method of instruction:	02	Lecture
	72	Internet-Based, Delayed Interaction
	71	Internet-Based, Simultaneous Interaction
Area department:	CS	Computer Studies
Division:	72	Arts & Humanities
Special topic course:	N	Not a Special Topic Course
Program status:	1	Both Certificate and Major Applicable
Repeatability:	00	Two Repeats if Grade was D, F, NC, or NP
Repeat group id:		

SCHEDULING

Audit allowed:	N	Not Auditable
Open entry/exit:	N	Not Open Entry/Open Exit
Credit by exam:	N	Credit by examination not allowed
Budget code: Program:	0000	Unrestricted
Budget code: Activity:	0701	Computer & Information Science

OTHER CODES

Discipline:	Computer Information Systems OR Computer Science	
Basic skills:	N	Not a Basic Skills Course
Level below transfer:	Y	Not Applicable
CVU/CVC status:	Y	Distance Ed, Not CVU/CVC Developed
Distance Ed Approved:	Y	Either online or hybrid, as determined by instructor
Emergency Distance Ed Approved:	Y	Fully Online Partially Online Online with flexible in-person activities
Credit for Prior Learning:	N	Agency Exam
	N	CBE
	N	Industry Credentials
	N	Portfolio
Non-credit category:	Y	Not Applicable, Credit Course
Classification:	Y	Career-Technical Education
SAM classification:	C	Clearly Occupational
TOP code:	0707.20	Database Design and Administration
Work-based learning:	N	Does Not Include Work-Based Learning

DSPS course:

N

Not a DSPS Course

In-service:

N

Not an in-Service Course