

Data Management using Structured Query Language

2023-2024
Catalog

[ARCHIVED CATALOG]

DBMS 130 - Data Management using Structured Query Language

PREREQUISITES: [DBMS 110 - Introduction to Data Analytics](#).

PROGRAM: Data Analytics

CREDIT HOURS MIN: 3

LECTURE HOURS MIN: 2

LAB HOURS MIN: 2

DATE OF LAST REVISION: Fall, 2020

Students are introduced to Structured Query Language (SQL) which is a database computer language used to manage, query, retrieve and manipulate data. Students are introduced to SQL as a high level tool in the management of data in client and server database environments. Students will use relational database management systems to develop SQL skills in a lab environment.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course the student will be able to:



1. Discuss procedural versus declarative languages.
2. Utilize SQL to identify and describe the structure and contents of a database.
3. Design DDL Statements to Create and Manage Tables.
4. Implement keys and constraints to ensure data and referential integrity.
5. Utilize SQL DML commands to insert, update, and delete data.
6. Utilize SQL commands to retrieve data from single and multiple tables.
7. Employ Set Operators to combine the results of multiple queries.
8. Design and execute table joins and aggregate functions.
9. Modify SQL commands to restrict and sort data.
10. Use single-row and multiple-row subqueries to improve query performance.
11. Differentiate between Single-Row and Multi-Row functions.
12. Develop and alter stored procedures and user-defined functions (UDFs).
13. Demonstrate how to extract, transform, and load data into various data systems.
14. Compare performance and usage of relational vs. big data and NoSQL systems.
15. Implement and utilize scripts in order to declare and enumerate schema objects.

COURSE CONTENT: Topical areas of study include -

- Define a database using SQL
- Data Types
- DDL - Database Design Language
- Conditional Expressions
- DML - Database Manipulation Language
- Common Table Expressions (CTS's)
- Data and Referential Integrity

- DCL - Database Control Language
- Database Manipulation
- SQL SELECT statements
- Single and multiple-table queries
- Aggregate Functions
- Joins - Unions, Left, Right, Inner, Outer
- Indexes
- Views
- Synonyms
- Transactions
- Nested Queries
- Normalization
- Big Data

[Course Addendum - Syllabus \(Click to expand\)](#)

