

Oracle: Database Design and Programming with SQL

Instructor	Mrs. Smith	Phone	324-2247
Room	56	E-mail	busmith@helenaschools.org

Course Description

This course engages students to analyze complex business scenarios and create a data model—a conceptual representation of an organization's information. Participants implement their database design by creating a physical database using SQL. Basic SQL syntax and the rules for constructing valid SQL statements are reviewed. This course culminates with a project that challenges students to design, implement, and demonstrate a database solution for a business or organization.

Course Objectives

Students analyze case studies to identify patterns and connections between information not obviously related and to develop solutions to make a business effective. The program teaches inductive reasoning to solve problems and think conceptually, systematically, and critically. Students become proficient business analysts, technical experts in structured query language (SQL), and develop essential "professional skills" including teamwork, project management, presentation, and interviewing techniques. Some of the objectives of the course are:

- Students will transform business requirements into an operational database
- Students will create physical relational database tables to implement a database design
- Students will manage a business project that delivers a database design and model for a potential client
- Students will create, maintain, and manipulate database objects
- Students will prepare for Introduction to Oracle 9i – SQL Certification exam

Course Outline

Database Design

Section 1 - Introduction
 Section 2 - Entities and Attributes
 Section 3 - Relationship Basics
 Section 4 - Super/Sub Types and Business Rules
 Section 5 - Relationship Fundamentals

Section 6 - UIDs and Normalization
 Section 7 - Arcs, Hierarchies, and Recursive Modeling
 Section 8 - Changes and Historical Modeling
 Section 9 - Mapping
 Section 10 - Creating Database Projects
 Section 11 - Presenting Database Projects

Database Programming with SQL

Section 1 - Introduction
 Section 2 - SELECT and WHERE
 Section 3 - WHERE, ORDER BY, & Functions
 Section 4 - Single Row Functions Part I
 Section 5 - Single Row Functions Part II
 Section 6 - JOINS Part I
 Section 7 - JOINS Part II
 Section 8 - Group Functions Part I
 Section 9 - Group Functions Part II
 Section 10 - Subqueries

Section 11 - Ensuring Quality Queries Part I
 Section 12 - DML
 Section 13 - DDL
 Section 14 - Constraints
 Section 15 - Views
 Section 16 - Sequences and Synonyms
 Section 17 - Privileges and Regular Expressions
 Section 18 - TCL
 Section 19 - Final Project and Exam Review
 Section 20 - Ensuring Quality Queries Part II

Curriculum & Useful URLs

Students will access the curriculum on the Internet at [Oracle Academy](#) (there is no paper textbook). A username and password will be used to login into Oracle Academy which is Oracle's on-line learning environment.

Other Useful URLs:

- Moodle: <https://moodle.helenaschools.org/>



Classroom Expectations

BE RESPONSIBLE

- Be seated when bell rings (5 or more minutes tardy = absent)
- No food or drinks except for those listed in handbook
- Take care of the equipment & clean up after yourself

BE INVOLVED

- You have to be able to read the curriculum and complete on-line assignments and assessments. If you are unable to do this, this is not the class for you.**
- Stay awake
- Work hard on Oracle work the whole period
 - Don't use Oracle time to work on other classes.
 - Internet is only for Oracle work (see HHS AUP)
- Cellphones and headphones are not allowed** – both interfere with being able to get the most out of the class

BE RESPECTFUL

- Compliment people instead of putting them down
- Don't be disruptive (out of seat, talking when I am talking, etc.)

BE A GRADUATE

- Don't cheat – all parties involved will receive a 0 if caught

GRADE CALCULATION

- Assignments 70%
- Quizzes/Tests 30%
- Semester Grade = Q1/Q3 40%, Q2/Q4 40% & Final 20%

GRADING Scale

- 100-92 = A 91-90 = A- 89-88 = B+ 87-82 = B 81-80 = B-
- 79-78 = C+ 77-72 = C 71-70 = C- 69-68 = D+ 67-62 = D
- 61-60 = D- 59 & below = F

LATE WORK

- 20% off on any assignment that is turned in late

ABSENCES

- Check assignments on my webpage
- New assignments: 2 days for 1st day missed; 1 for all others
 - Previously assigned work will be due on original due date
 - Previously scheduled tests will be taken on return to class