COM230 SQL and Database Design

8 UNITS: 60 HOURS LECTURE + 40 HOURS LAB+ 120 HOURS HOMEWORK

SYLLABUS

Description

This course is an introduction to Database Design and the SQL language. The Relational Database model will be covered in detail, along with basic database design and the fundamentals of the SQL data manipulation language. The focus will be on data retrieval, but design concepts and data normalization will also be discussed. Database administration and security will also be introduced.

Prerequisites

None

Resources

Text

Tahaghoghi, S., & Williams, H. (2007). Learning MySQL. Sebastopol, Calif.: O'Reilly.

Supplemental Resources

DuBois, P. (2005). MySQL: The definitive guide to using, programming, and administering MySQL 4.1 and 5.0 (3rd ed.). Indianapolis, Ind.: Sams Pub.

Course Objectives and Outcomes

Upon successful completion of this course, students will be able to:

Produce

- Solutions to business data retrieval problems
- Design diagrams for a relational database
- Scripts for managing a MySQL database
- A PHP application to manage a database table

Use

- SQL commands to retrieve database data
- SQL commands to manage a MySQL database
- SQL commands to create database objects
- MySQL tools to submit SQL commands
- SDLC and the Database Design Life cycle to create business data solutions
- Effective team techniques to work with a diverse group of individuals toward a common goal
- PHP to access data in a MySQL database

Knowledgeably Discuss

- Relational Database concepts
- Fundamentals of Relational Database design
- The SQL language
- The basics of database management
- How a database fits into the overall business plan
- Fundamentals of database security
- The PHP language

Course Outline (see course schedule for specific dates)

Week	Topic	Chapter or Resource	Activity
1	Introduction to MySQL and Relational Databases Relational Database Concepts MySQL Tools (Lab)	Chapters 1 & 3 Lessons 1- 3	**Read:** Chapters 1 & 3 and Lessons 1 -3 32 pages: 3.2 hours **Midterm Review Terms:** 65 definitions 6.5 hours (see lesson 12). Evaluation**:** graded 5 points **Practical application**: creating my own DB – 3 hours. Evaluation – graded, 3 points **Demo PHPMyAdmin and MySQL Monitor**
2	Database Design Database Normalization	Chapter 4 Lessons 4 & 5	**Read:** Chapter 4 and Lessons 4 & 5 31 pages: 3.1 hours **Project 1**: Database Design 3 hours, Evaluation: graded 5 points **Practical application**: Entering and retrieving data – 3 hours. Evaluation – graded, 3 points
3	Creating and Altering Tables Constraints Storage Engines	Chapters 5 & 6 Lessons 6 - 8	**Read:** Chapters 5 & 6 and Lessons 6 - 8 90 pages: 9 hours **Practical application**: Altering tables, defining constraints – 3 hours. Evaluation – graded, 3 points
4	Basic SQL World SQL Database(Lab Basic queries) Advanced SQL	Chapter 7, 8 & 10 Lessons 9 & 10	**Read:** Chapters 7, 8 & 10 and Lessons 9 & 10 114 pages: 11.4 hours **Project 2**: Simple Queries 4 hours. Evaluation**:** graded 5 points **Practical application**: Performing SQL on my data – 3 hours. Evaluation – graded, 3 points
5	Adding More to Queries, Views Sakila Database(Lab Advanced queries)	Topics to Date Lessons 11 - 12	**Read:** Lessons 11 - 12 5 pages: .5 hours **Final Review Terms:** 29 definitions 2.9 hours (see lesson 23). Evaluation: graded 5 points **Project 3**: Advanced Queries 6 hours. Evaluation: graded 10 points
6	Stored Procedures Triggers Introduction to PHP	Chapters 13 & 14 Lessons 13 & 14	**Read:** Chapter 13 & 14 & Lessons 13 - 14 86 pages: 8.6 hours **Project 4:** Procedures and Triggers 6 hours. Evaluation: graded 10 points **Practical application**: Adding triggers & procedures – 3 hours. Evaluation – graded, 3 points
7	Database Access using PHP Introduction to Famous	Chapter 15	**Read:** Chapter 15 & Lessons 15 - 17 51 pages: 6 hours

	Quotes CMS Managing Authors	Lessons 15 - 17	**Midterm** **Project 5:** Famous Quotes CMS 10 hours. Evaluation: graded 10 points **Practical application**: Deliver data to the web – 3 hours. Evaluation – graded, 3 points
8	Managing Categories Managing Quotes	Lesson 18 & 19	**Read:** Lessons 18 & 19 29 pages: 2.9 hours **Practical application**: enable data filtering via the web – 3 hours. Evaluation – graded, 3 points
9	Database Administration Transactions and Locking	Chapter 9 Lessons 20 & 21	**Read:** Chapter 9 and lessons 20 & 21 54 pages: 5.4 hours **Project 6:** Enhance "Famous Quotes" Project (#4) 8 hours **Evaluation:** graded 5 points **Quiz 3** **Practical application**: protecting my data against SQL injection – 4 hours. Evaluation – graded, 4 points
10	Course Wrap-up		**Quiz 4/Final** **SRVY**

Total hours of required reading: 50.1 hours Total hours term definitions: 9.4 hours Total hours Projects 37 hours Total hours of out-of-class activities: 120.5 hours

Your Grades for this Course

Your final grade for this course will be based on an assessment by the Instructor of your performance on a number of course activities, which may include objective tests, classroom exercises, laboratory demonstrations, project papers, or other types of activities. The chart below indicates in what activities you will engage, how many possible points can be earned for each activity, and the percentage of your final grade that will be accounted for by each activity.
Students in this course should be graded following Coleman University assessment practices and policies. A point system is used in the University to indicate student performance on various required activities or projects. For this course, it is recommended that points be distributed as follows:

Coleman University Grade Assignment Policy:

Percent	Letter Grade	Grade Points
94-100	A	4

90-93	A-	3.67
87-89	B+	3.33
84-86	B	3
80-83	B-	2.67
77-79	C+	2.33
74-76	C	2
70-73	C-	1.67
67-69	D+	1.33
64-66	D	1
60-63	D-	0.67
N/A	INC	0
N/A	W	0
60 or above	CR	0
59 or below	NC	0
N/A	I	0
N/A	W	0
N/A	AU	0
N/A	TR	0
N/A	WV	0

Legend	
CR = Credit	NC = No Credit
I = Incomplete	W = Course Withdrawal
AU = Audit	TR = Transfer Credit
WV = Waiver	

Academic Accommodation / Adjustment Policy:

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA), Coleman University offers accommodations to students with documented physical, psychological, and/or cognitive disabilities. Coleman University will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to offer equal educational opportunities to qualified disabled individuals.

To qualify for an academic accommodation under ADA, the student must provide adequate documentation of a disability. Students seeking academic accommodations should contact the campus ADA Coordinator at 858-966-3953 or via email at ada@coleman.edu. The ADA Coordinator will review the documentation provided and verify ADA coverage. Students covered under ADA must meet with the ADA Coordinator at the beginning of every term to determine the appropriate academic accommodations. Failing to meet with the ADA Coordinator at the beginning of every term may impact the availability of accommodations.

After the academic accommodations have been determined, the students' instructors will be

notified by the ADA Coordinator. If any problems or concerns regarding the provision of accommodations occur, the student must inform the ADA Coordinator. If the student feels accommodation is not being made appropriately, the student may follow the published Student Grievance Procedures.