# COURSE SYLLABUS
COM 232 SQL and Database Design

## Course 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.

## General Course Information

| | |
|---|---|
| Number of Units/Weeks | 4/10 |
| #Hours Lecture/#Hours Laboratory/#Hours Homework | 30/20/73.35 |
| Prerequisite(s) | None |
| Co-requisites (s) | None |
| Course Developer(s) | Palmer, Steve/Kris Secor |
| Date Approved / Last Review | May 2014 / New |

## Learning Outcomes

Upon completion of the course the student will be able to:

1. Student will be able to apply basic SQL statements by answering test questions and course projects
2. Student will be able to use a database management system by creating tables and SQL statements for test questions and course projects
3. Student will be able to describe database design techniques and will be able to demonstrate these techniques in special design projects
4. Student will be able to apply relational database concepts on test questions and course projects
5. Student will be able to apply intermediate SQL statements on test questions and course projects
6. Student will be able to demonstrate database administration techniques by creating tables, users, and SQL statements.
7. Student will participate in a team competition where class individuals compete against one another.

Instructional Methods Employed in this Course
- Lecture and reading assignments
- Quizzes

- Hands-on exercises and labs
- Practical application of theory and skills in authentic projects
- Build on prior knowledge and experience of students to enhance richness of class activities
- Team competition

## Information Resources for this Course

**Textbook**

- **TEXT:** Beaulieu, Alan. (2009). Learning SQL: Master SQL Fundamentals 2nd Edition, O'Reilly Media. ISBN: 978-0596520830
- HTML: MySQL 5.1 Reference Manual https://dev.mysql.com/doc/refman/5.1/en/

- **Recommended Readings**
- TEXT: Database Design, Addison-Wesley by Michael J. Hernandez Copyright 2013 ISBN-13: 978-321-88449-7 and ISBN-10: 0-321-88449-3

**Web Site Readings**

http://www.w3resource.com/mysql/mysql-tutorials.php Our Class Website

## Table/Topics & Assignments

| | |
|---|---|
| Total hours of required reading: | 25.05 hours |
| Total hours term definitions: | 4.7 hours |
| Total hours Projects | 18.5 hours |
| Total hours of out-of-class activities: | 60.25 hours |

## Table/Topics & Assignments

| **Week 1** | | | | | | |
|---|---|---|---|---|---|---|
| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |
| LEC 1A | Introduction<br>Lesson 1: Intro to databases<br>Lesson 2: Database concepts | 3 | | | | |
| Lab 1A | Exploring the interface | | 1 | | | |
| | | | | | | |
| HW 1A | Read chapters 1 & 3 (52 pages).<br>Evaluated in Test 1 | | | 5.2 | | |
| Total Week 1 | | 3 | 1 | 5.2 | | |
| **Week 2** | | | | | | |

| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |
|---|---|---|---|---|---|---|
| LEC 2A | Lesson 3: Relational database concepts<br>Lesson 4: MySQL Tools | 2 | | | | |
| LEC 2B | Lesson 5: Database design | 2 | | | | |
| LAB 2A | Practical application 1 | | 4 | | 30 | In class |
| HW 2A | Read chapter 4 (15 pages) and lessons 4 & 5. Evaluated in Test 1 | | | 3.5 | | |
| Total Week 2 | | 4 | 4 | 3.5 | 30 | |
| **Week 3** | | | | | | |
| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |
| LEC 3A | Lesson 5, continued: Database design | 3 | | | | |
| EXAM 3A | Test 1 | 1 | | | 50 | In class |
| HW 3A | Project 1 | | | 3 | 100 | Week 4 |
| Total Week 3 | | 4 | | 3 | 150 | |
| **Week 4** | | | | | | |
| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |
| LEC 4A | Lesson 6: Database normalization<br>Lesson 7: Creating and altering tables<br>Lesson 8: Constraints | 2 | | | | |
| LAB 4A | Practical application 2 | | 2 | | 30 | In class |
| HW 4A | Read chapters 5 & 6 (94 pages). | | | 9.4 | | |
| | Evaluated in Test 2 | | | | | |
| LEC 4B | Lesson 9: Storage and indexing<br>Lesson 10: Basic SQL | 2 | | | | |
| LAB 4B | Practical application 3 | | 1 | | 30 | In class |

| | | | | | | |
|---|---|---|---|---|---|---|
| EXAM 4A | Test 2 | 1 | | | 50 | In class |
| HW 4B | Read chapters 7, 8 & 10 (158 pages). Evaluated in Test 3 | | | | | |
| HW 4C | Project 2 | | | 4 | 100 | Week 5 |
| Total Week 4 | | 5 | 3 | 13.4 | 210 | |
| **Week 5** | | | | | | |
| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |
| LEC 5A | Lesson 11: Intermediate SQL statements | 3 | | | | |
| HW 5A | Midterm review. Evaluated by midterm exam | | | 24 | | |
| EXAM 5A | Midterm Exam | 1 | | | 100 | In class |
| Total Week 5 | | 4 | | 24 | 100 | |
| **Week 6** | | | | | | |
| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |
| LEC 6A | Lesson 12: Advanced SQL statements | 2 | | | | |
| HW 6A | Read chapters 11 & 12 (72 pages). Evaluated in Test 3 | | | 7.2 | | |
| LAB 6A | Practical application 4 | | 2 | | 30 | In class |
| LEC 6B | Lesson 13: Views Lesson 14: Stored procedures and triggers | 4 | | | | |
| HW 6B | Read chapters 13 & 14 (20 pages). Evaluated in Test 3 | | | 2 | | |
| HW 6C | Project 3 | | | 4 | 100 | Week 7 |
| Total Week 6 | | 6 | 2 | 13.2 | 130 | |
| **Week 7** | | | | | | |
| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |

| | | | | | | |
|---|---|---|---|---|---|---|
| LEC 7A | Lesson 15: Database Administration | 1 | | | | |
| HW 7A | Read chapter 15 (11 pages) and lessons 15-17. Evaluated in Test 3 | | | 2 | | |
| LAB 7A | Practical application 5 | | 3 | | 30 | In class |
| Total Week 7 | | 1 | 3 | 2 | 30 | |
| **Week 8** | | | | | | |
| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |
| LEC 8A | Lesson 15: SQL Injection | 3 | | | | |
| EXAM 8A | Test 3 | 1 | | | 20 | In class |
| LEC 8A | Lesson 1: SQL injection | 4 | | | | |
| HW 8B | Read chapter 9. Evaluated in final exam | | | 5.9 | | |
| Total Week 8 | | 4 | | 5.9 | 20 | |
| **Week 9** | | | | | | |
| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |
| LEC 9A | Lesson 16: Transactions and locking | 1 | | | | |
| LAB 9A | Practical application 6 | | 3 | | 30 | In class |
| HW 9A | Project 4 | | | 4 | 100 | Week 10 |
| Total Week 9 | | 1 | 3 | 4 | 130 | |
| **Week 10** | | | | | | |
| Type | Topic/Description | LEC Hours | LAB Hours | HW Hours | Point Value | Due |
| LAB 10A | Team Competition | | 4 | | | |
| EXAM 10A | Terms review | 1 | | | 100 | |
| HW 10A | Final Review. Evaluated in final exam | | | 3.5 | | |
| EXAM 10B | Final Exam | 3 | | | 100 | In class |

| | | | | | | |
|---|---|---|---|---|---|---|
| Total Week 10 | | 4 | 4 | 3.5 | 200 | In class |

## Course Hours Summary

| Week | Topic | LEC Hours | LAB Hours | HW Hours |
|---|---|---|---|---|
| 1 | Introduction to databases | 1 | 3 | 5.2 |
| 2 | Relational database concepts | 4 | 4 | 3.5 |
| 3 | Database design | 4 | | 3 |
| 4 | Database normalization | 5 | 3 | 13.4 |
| 5 | Intermediate SQL statements | 4 | | 24 |
| 6 | Advanced SQL statements | 6 | 2 | 13.2 |
| 7 | Database access | 1 | 3 | 2 |
| 8 | Database administration | 4 | | 5.9 |
| 9 | Transactions and locking | 1 | 3 | 4 |
| 10 | Course Wrap Up | 4 | 4 | 3.5 |
| Total | | 36 | 20 | 77.7 |

## Table/Point Breakdown

| Assignment | Possible Points | Percent of Grade |
|---|---|---|
| Practical application | 180 | 18% |
| Test | 120 | 12% |
| Project | 400 | 50% |
| Midterm | 100 | 10% |
| Final | 100 | 10% |
| | 900 | 100% |

## 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.