THE UNIVERSITY OF TEXAS AT EL PASO
Department of Accounting and Information Systems

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CIS 4365 – Database Management

Course Syllabus, Fall 2024

Class Hours: Tuesdays and Thursdays 10:30 - 11:50 AM at CoBA 320
Office Hours: Tuesdays and Thursdays 1:00 - 4:10 PM (or by appointment)

Course Description

A practical course covering the concepts of relational database management systems (RDBMS) and Structured Query Language (SQL). Topics include conceptual design, relational systems design, normalization and denormalization processes, SQL, and its components.

Learning Objectives

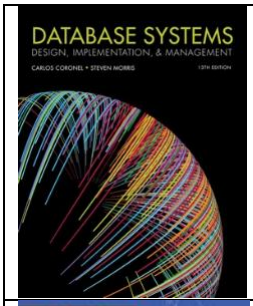
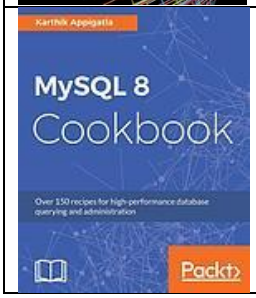
Upon successful completion of this course, students will be able to:

- Design and implement relational and non-relational databases.
- Use querying languages (e.g., SQL) to query data from databases.
- Connect databases to external software (e.g., python, Tableau)
- Apply best practices to manage databases.
- Implement policies to maintain the integrity and security of databases.
- Understand the basic principles behind data warehousing.
- Work with databases to create visual reports.
- Use database instances implemented in the cloud.

UTEP EDGE – Experiences

UTEP EDGE – Advantages

Required books

	Coronel, & Morris, S. (2019). *Database systems: design, implementation, and management* (13th ed., student ed). Cengage Learning.
	Appigatla. (2018). MYSQL 8 COOKBOOK: over 150 recipes for high-performance database querying and administration (1st ed.). PACKT Publishing. Available for free at UTEP library https://utep.primo.exlibrisgroup.com/permalink/01UTEP_INST/1q3tr5t/cdi_askewsholts_vlebooks_9781788398442

Required software

MySQL	MySQL Community Server. https://dev.mysql.com/downloads/mysql/
MySQL	MySQL Workbench. https://dev.mysql.com/downloads/workbench/
tableau	Tableau for students. https://www.tableau.com/academic/students
python	Python 3.0 or greater. https://www.python.org/

Teaching methods

1. Lectures and in-class assignments (CLASS)
    i. It is important for students to attend and engage in each class session. Students will be awarded participation points for each class session by completing an out-of-class activity (e.g., a short quiz, a survey, small assignment). Class participation activities are only available 24 hours after each class session. Only students that attend in person or present a formal justification for their absence will receive credit for their CLASS submission.
2. Class assignments (CASA)
    i. Before each lecture, students will be assigned a CASA assignment. These assignments have the goal of preparing students for lectures. All CASAs are due one hour before the lecture. Students are expected to provide references for all answers which utilize sources outside the class material. Submissions that miss to include the information used outside of the class material will not receive credit and will be reported to the Honor Code system.
3. Train assignments (TRAIN)
    i. The course has several TRAIN exercises to guide students in applying concepts of database management. Students will mainly use MySQL for completing their training exercises. However, some training exercises will require students to use other software packages, online services, and datasets available on the Internet. Students must disclose the source of all external material for every training exercise. Failure to disclose the external use of materials will not receive credit and be reported to the Honor Code System.
4. Exams
    i. Three will be three learning assessments (Exams).

Evaluation

In-class assignments – 5 points for each class session (25 CLASS assignments)
Class assignments – 15 points for each assignment (25 CASA assignments)
Train assignments – 40 points for each assignment (5 TRAIN assignments)
Exams – 100 points (3 Exams)

A	B	C	D	F
900	800	700	600	<600

Late assignments
Late assignments will be awarded 20% less credit per day late. Make-up assignments, class participation, discussions, checkpoints, and presentation will not be given.
There is a “due date” and an “until” on each assignment; if an assignment is submitted after the “due date,” it will be counted late, the “until” is open for late submissions, which will suffer the late penalty (20% off per day).

Extra credit
The course incorporates extra credit opportunities in assignments, in-class activities, and discussions to promote students' engagement in the class. Students will have the opportunity to complete two optional assignments that can be used as supplementary training or replace two graded assignments.

Email Procedure
Please include "CIS 4365" in the subject line of all emails to the instructor to ensure that they are properly filtered. It would be helpful if the subject line also included a brief statement of need, for example: "CIS 4365 – Request for Appointment." Please read the following link about emailing a professor for some helpful suggestions (e.g., please start with a greeting including my name and a signature including your name): http://www.wikihow.com/Email-a-Professor.

Accommodations
If you need special accommodations due to a disability, as recognized by the Americans with Disabilities Act, please contact The Center for Accommodations and Support Services (CASS) at 747-5148 or email at cass@utep.edu, or visit their office located at UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

Academic integrity
Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.

Acceptable use of Artificial Intelligence (AI)
The use of AI technologies or automated tools, particularly generative AI such as ChatGPT or DALL-E, **is only allowed with proper attribution given for its use**.

Students must properly cite and give full credit to the program used upon submission of every relevant assignment. For example, programming code generated using AI can only be used if the student understands its functionality. Additionally, all students must disclose the use of AI by including a citation, like the one below:

Chat-GPT(version). Date of query (year/month/day). "Text of your query." Generated using OpenAI Chat-GPT. https://chat.openai.com/

Copying and pasting blindly code directly from AI is strictly prohibited. Students who plagiarize code will be reported to the Office of Student Conduct and Conflict Resolution (OSCCR).

Tentative **Course Outline**

Module 1: Fundamentals of Database Management	
Week #1	***Introduction to database systems and modeling***
08/27 - Session 0	Introduction to CIS 4365
08/29 - Session 1	Database history and introduction to database building blocks
Week #2	***Database modeling***
09/03 - Session 2	The relational database model
09/05 - Session 3	The entity relational (ER) model
Week #3	***Structured Query Language (SQL) - Part 1***
09/10 – Session 4	SQL Language elements, data types, and language categories
09/12 – Session 5	SQL technologies and SQL queries (SELECT and GROUP BY)
Week #4	***Structured Query Language (SQL) - Part 2***
09/17 – Session 6	SQL to insert, update and delete data. SQL to alter, create and delete objects
09/19 – Session 7	Exam Review
09/22 - TRAIN	TRAIN 1 – Basics of SQL
Week #5	***Database design and implementation***
09/24 – Session 8	Database Normalization
09/26 – Session 9	Information Systems and Databases
09/29 - Exam	Exam 1 – Fundamentals of Database Management
Module 2: Advanced Database Management and Querying	
Week #6	***Transaction management and concurrency control***
10/01 – Session 10	Database optimization using Indexes
10/03 – Session 11	Transaction and concurrency control - Design Day
Week #7	***Distributed database management systems***
10/08 – Session 11	Introduction to distributed database management systems
10/10 – Session 12	Distributed database design
10/13 - TRAIN	TRAIN 2 - Social Media
Week #8	***Database administration and security***
10/15 – Session 13	Database administration
10/17 – Session 14	Introduction to database security
Week #9	***Best practices of database security***
10/22 – Session 15	SQL Injection hands-on

10/24 – Session 16	Securing the server hands-on
Week #10	***Database connectivity and applications***
10/29 – Session 17	Database connectivity
10/31 – Session 18	SQL team day
11/03 - TRAIN	TRAIN 3 – Social media
Module 3: Big data, business intelligence, and data visualizations	
Week #11	***Big data and NoSQL***
11/05 – Session 19	Big data and exam review
11/07 – Session 20	NoSQL
11/10 - Exam	Exam 2 – Advance database management
Week #12	***Business intelligence and data warehouse***
11/12 – Session 21	Business intelligence
11/14 – Session 22	Data warehouse
11/17 - TRAIN	TRAIN 4 – Mystery investigation using SQL
Week #13	***Visualizing database data using Tableau***
11/19 – Session 23	Data visualizations basic concepts and best practices
11/21 – Session 24	Data Visualization practice
11/24 - TRAIN	TRAIN 5 – Tableau visualizations using databases
Week #14	***Future on database management and artificial intelligence***
11/26 – Session 25	Emerging topics in database management
11/28 – No session	Thanksgiving break
Week #15	***Semester review***
12/03 – Session 26	Artificial Intelligence in the database management world
12/05 – Session 27	Exam Review
12/12 - Exam	**Exam 3 - Comprehensive of all the modules**

Important Notes:

1. In addition to the announced office hours, students may stop by my office at any time (or email me) to ask questions.
2. If you have any trouble with the class, please get help ASAP. Do not let the problems build up.
3. This syllabus is tentative.