University of Texas at El Paso Department of Computer Science
CS 5342 Database Management - Spring 2021

Logistics

Instructors:
Natalia Villanueva Rosales, e-mail: nvillanuevarosales [at] utep.edu.
Class time: Mondays 4:30-7:20 pm.
Delivery: Virtual delivery using Blackboard Collaborate.
Office hours virtually via Blackboard Collaborate: Mondays and Wednesdays, 3:30-4:30 pm (Instructor Dr. Villanueva Rosales) and by appointment outside this time.
Teaching Assistant(s) and Office Hours virtually via Blackboard Collaborate:
Angel U. Ortega (auortega@miners.utep.edu) TA of this class – Tuesdays, Thursdays 4:00-6:00 pm.
Note: Office hours times may change throughout the semester and will be announced to the class.
Email: Please use email as the main means to contact the instruction team, add [CS5342] in the prefix of the email and use your UTEP student account. The instruction team will do their best to respond within 24-48 hours of receipt.
Discussion Board: If you have a question that you believe other students may also have, please post it in the 24/7 discussion board inside of Blackboard. Please respond to other students' questions if you have a helpful response.

Announcements: Check the Blackboard announcements frequently for any updates, deadlines, or other important messages. It is recommended that you download the Blackboard mobile App to receive notifications.

Course Catalog Description

Introduction to database fundamentals, database design and implementation, the use of database management systems for application, and current trends for data management. Topics in this course include: relational algebra, entity-relationship models, relational data models, normalization, semi-structured data models, schema design, query processing, data integrity, privacy, security and data analytics.

Learning Outcomes

Course Outcomes
Divided into the following three broad levels of Bloom's taxonomy:

Level 1: Knowledge and Comprehension.
Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. The material has been presented only at a superficial level. Upon successful completion of the course, students will be able to:
1a. Describe and compare data models (e.g., Entity-Relationship model, relational model, semistructured model), how they have been used in the past, and how they are currently used for data management.

1b. Describe the components of a database system, the most common designs for core database system components including the query optimizer query executor, storage manager, access methods, and transaction processor their most common design, and give examples of their use.
1c. Cite the basic goals, functions, and models of database systems.
1d. Identify database languages and interfaces for data management.
1e. Critique an information application with regard to satisfying user information needs.
1f. Explain the uses of declarative queries.
1g. Identify database architectures (e.g., centralized, distributed, web-based).
1h. Identify current trends of data management paradigms.
1i. Describe technical solutions to the challenges in information privacy, integrity, security, and preservation.
1j. Identify major database management systems functions and describe their role in a database system.
1k. Identify the careers/roles associated with information management

Level 2: Application and Analysis.
Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details. Upon successful completion of the course, students will be able to:
2a. Demonstrate uses of explicitly stored metadata/schema associated with data.
2b. Use a relational query language (e.g. SQL) to elicit information from a database.
2c. Justify the use of relational or non-relational data management systems based on the requirements of an application.
2d. Demonstrate the ability to work in teams

Level 3: Synthesis and Evaluation.
Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery. Upon successful completion of the course, students will be able to:
3a. Design a database system from a problem statement to a conceptual, high-level data model (e.g., Entity-Relationship) using standard notation and modeling principles.
3b. Design a relational data model from a conceptual data model.
3c. Normalize a database using the 1st, 2nd, and 3rd normal forms.
3d. Use relational algebra and set theory for creating queries and query trees to retrieve information from a relational data model.
3e. Design and implement a relational data model in a relational database schema using a database management system.
3f. Design and implement an interface for a database system applying best practices for usability, privacy and security.

Grading

1. Exams including midterms, final, and quizzes 50%.
2. Project deliveries including assignments and presentations 35%.
3. Active class participation, homework, and activities 15%.

Assignments for this course are assessed according to rubrics. Each assignment will be provided with the corresponding rubric.

Required Materials

Textbook: Fundamentals of Database Systems (Seventh Edition). Ramez Elmasri and Shamkant Navathe. Ed. Pearson. ISBN-13: 9780133970777.

Technology Requirements: Course content is delivered through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard. When having technical difficulties, update your browser, clear your cache, or try switching to another browser. You will need to have access to a computer/laptop, scanner (or a mobile App that can scan a document), and a device with a webcam. You will need to download or update a list of software provided in the Blackboard shell, including MySQL. Instructions will be provided at least a week before the software is needed.

Expectations

Standards of conduct

Scholastic Dishonesty: Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but not limited to cheating, plagiarism, collusion, submission for credit of any work or materials that are attributable to another person. **Cheating** is copying from the test paper of another student. Communicating with another student during a test to be taken individually. Giving or seeking aid from another student during a test to be taken individually. Possession and/or use of unauthorized materials during tests (i.e. crib notes, class notes, books, etc.). Substituting for another person to take a test. Falsifying research data, reports, academic work offered for credit. Paying a person or company to complete coursework (i.e., contract cheating). **Plagiarism** is using someone's work in your assignments without the proper citations. Submitting the same paper or assignment from a different course, without direct permission of instructors. To avoid plagiarism, see: http://sa.utep.edu/osccr/wp-content/uploads/sites/8/2012/09/AvoidingPlagiarism.pdf. **Collusion** is unauthorized collaboration with another person in preparing academic assignments.

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*. *The delivery of the course is fully online and students are expected to comply with the same standards of conduct as with in-person instruction, to learn more about student conduct visit* HOOP: Student Conduct and Discipline.

Netiquette: With online communication, it is possible to miscommunicate what we mean or to misunderstand what our classmates mean given the lack of body language and immediate feedback. Therefore, please keep these netiquette (network etiquette) guidelines in mind. Failure to observe them may result in disciplinary action. Additional guidelines will be provided in the Blackboard cours shell.

- *Always consider audience.* This is a college-level course; therefore, all communication should reflect polite consideration of other's ideas.

- *Respect and courtesy* must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, *address the ideas*, not the person. Post only what anyone would comfortably state in a face-to-face situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please **do not copy documents or course content to a publicly accessible website, blog, or other space**.

Attendance and Participation: Attendance in the course is determined by participation in the learning activities of the course. Your participation in the course is important not only for your learning and success but also to create a community of learners. Participation is determined by completion of the following activities:

- Reading/Viewing all course materials to ensure understanding of assignment requirements
- Participating in engaging discussion with your peers on the discussion boards and team journals
- Participating in scheduled Blackboard Collaborate sessions
- Completing session activities (e.g., quizzes, polls) indicated in the Blackboard course shell

Because these activities are designed to contribute to your learning each week, they cannot be made up after their due date has passed. Due to non-performance in the course or excessive non-excused absences (see UTEP Undergraduate Catalog for a list of excuse absences) you may be dropped from the course with a grade of "W". A 72-hours advance notice will be provided to you via email.

Blackboard Collaborate sessions: This class requires that you participate in scheduled Blackboard Collaborate sessions. The purpose of these sessions are for you to view live demonstrations of the course material and/or to participate in small discussion groups with your classmates. These sessions will be held during the scheduled lecture time. Students are expected to, at least occasionally, participate in these sessions with a microphone. The sessions will be recorded and provided so that they can be reviewed by classmates at a later time. The use of recordings will enable you to have access to class lectures, group discussions, and so on in the event you miss a synchronous or in-person class meeting due to illness or other extenuating circumstance. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA) and UTEP's acceptable-use policy. A recording of class sessions will be kept and stored by UTEP, in accordance with FERPA and UTEP policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. **You may not share class sessions recordings outside of this course.** Doing so may result in disciplinary action. If you are unable to attend a Collaborate session, please let your instructor know as soon as possible so that accommodations can be made when appropriate.

Course materials:
The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.

Deadlines and late work: The penalty for late-work is 10% per 24 hours, unless a specific assignment indicates otherwise. Make-up work will be given *only* in the case of a *documented* emergency. Note that

make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss a homework or assignment and the reason is not considered excusable, you will receive a zero. It is therefore important to reach out to me—in advance if at all possible—and explain why you missed a given course requirement. Proper documentation may be required. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.
It is strongly recommended to submit your work with plenty of time to spare in the event that you have a technical issue with Blackboard, network, and/or your computer. Save all your work (homeworks, quizzes, exams, and assignments) in a separate document as a back-up. This way, you will have evidence that you completed the work and will not lose credit. If you are experiencing difficulties submitting your work through Blackboard, please contact the UTEP Help Desk. Emailing work directly to the instructor should be your last resort.

COVID-19 precautions: You must **stay at home** and **report** if you (1) have been diagnosed with COVID-19, (2) are experiencing COVID-19 symptoms, or (3) have had recent contact with a person who has received a positive coronavirus test. Reports should be made at screening.utep.edu. If you know anyone who should report any of these three criteria, encourage them to report. If the individual cannot report, you can report on their behalf by sending an email to COVIDaction@utep.edu. For each day that you attend campus—for any reason— you must complete the questions on the UTEP screening website (screening.utep.edu) prior to arriving on campus. The website will verify if you are permitted to come to campus. If you are feeling unwell, please let me know as soon as possible by email, and alternative instruction will be provided. Students are advised to minimize the number of encounters with others to avoid infection.

Special accommodations: Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

Student resources: UTEP provides a variety of student services and support:
Technology Resources

- Help Desk: Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

Academic Resources

- UTEP Library: Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- University Writing Center (UWC): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.

Individual Resources

- Military Student Success Center: Assists personnel in any branch of service to reach their educational goals.

- Center for Accommodations and Support Services: Assists students with ADA-related accommodations for coursework, housing, and internships.
- Counseling and Psychological Services: Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

NOTES:
When in doubt on any of the above, please contact the instructor to check if you are following authorized procedure.