CS 6360.001 - Database Design

INSTRUCTOR:
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MW, 11:30am – 12:30pm
Virtual office hours: MS Teams, by appointment

TA contact information and office hours will be posted on eLearning when a TA is assigned to the course.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

CS 5343 - Algorithm Analysis and Data Structures or equivalent: Abstract data types: lists, stacks, queues, trees, search trees. Hashing. Priority queues: heaps. Sorting and searching. Graphs: representation and algorithms. Running-time analysis of algorithms and order notation.

Course Description

Topics: Introductory concepts: Data models, ER diagrams. Relational Model, Query Languages: Relational Algebra, Relational Calculus, SQL. Database Design Concepts: Functional dependencies, Normal forms. Data Organization, Index Structures. Query Optimization. Transaction Processing: Concurrency control, Deadlock prevention, Serializability, Recovery. Security issues. Case studies.

Student Learning Objectives/Outcomes

Study methods, principles and concepts that are relevant to the design of database systems. Analyze issues related to database systems from several perspectives (designer, programmer, user, administrator).

Recommended Textbooks and Materials

"Fundamentals of Database Systems", 7th Edition, R. Elmasri and S. B. Navathe.

Course Platform	Announcements, course materials and assignments will be posted on eLearning. Students will turn in their assignments through eLearning and no email submissions will be accepted.
Class meetings	All students are required to attend classes in person. In case you cannot attend the class, you need to notify me before class time. As there will be in-class quizzes, makeup quizzes will only be given in case of prior notification and legitimate reasons.
Course Structure	**Active Learning:** You will need to get prepared for the class for best learning experience. Power point slides will be posted before class day. You will be responsible for reading and studying slides before class meeting on Tuesday/Thursday.

Evaluation:
Your final grade for the course will be based on the following percentages:

Exam-1	25%
Exam-2	25%
Quizzes	25% (5 quizzes)
Final Project	25% (5 assignments)

Letter grades will be assigned according to the following scale:

A: 93-100
A-: 90-92
B+: 85-89
B: 80-84
B-: 75-79
C+: 70-74
C: below 70

Recommendation letters for A students only.

Tentative Course Schedule

Chapter 1, 2: Introduction to Databases Chapter 3: Entity Relationship Model Chapter 4: Enhanced Entity Relationship Model * Chapter 5: Relational Model Chapter 9: ER/EER to Relational Mapping Chapter 8: Relational Algebra * Chapter 6: Basic SQL Chapter 7: Complex SQL *	
Exam 1	
Chapter 14: Normalization * Chapter 15: Database Design Algorithms and Further Dependencies Chapter 10: SQL Programming (PL/SQL) * Chapter 17: Indexing Structures for Files Chapter 18: Algorithms for Query Processing and Optimization Chapter 21: Introduction to Transaction Processing Chapter 22: Concurrency Control Techniques Chapter 24: NoSQL Databases – MongoDB	
Exam 2	

* Quizzes will be held on practical subjects.

Exams
All exams will be held at the Testing Center. Please register for ALL your exams via this link: https://ets.utdallas.edu/testing-center.

"Student Guidelines" for Testing Center:
https://ets.utdallas.edu/testing-center/students/

Course Policies

- Practice works/assignments should be turned in no later than the deadline announced by the instructor. Turn in what is completed by the deadline for partial credit. No late submissions will be accepted.
- Any indication of cheating and/or plagiarism on an exam, assignment or project will be an automatic 0 (zero) for all students who are involved. Solutions copied from the internet will be also given zero credit.
- There will be no makeup exams unless there is a serious conflict that prevents you to take the exam during scheduled exam time and prior notification of such condition is required.
- If there are questions/doubts about grading, please contact course TA within one week of grade announcement.

Communication

The best way of communication with the Instructor and course TA is through email. Since class sizes are large, when you send an email, ensure to include the course number (i.e. CS 6314.001) and your NetID at the end of email message. Student emails will be answered within 1-2 working days under normal circumstances.

Classroom Conduct Requirements Related to Public Health Measures

The University of Texas at Dallas strongly encourages you to get a COVID-19 vaccine in addition to wearing a mask when appropriate, social distancing when possible, covering coughs and sneezes, and practicing good hand hygiene.
If you have tested positive for COVID-19, please fill out our COVID-19 self-report form, which is available in English and Spanish. While UT Dallas is no longer using contact tracing, completing the positive COVID-19 self-report form allows UT Dallas officials to monitor COVID-19 trends on campus.

Visit Comets United webpage to obtain the latest information on the University's guidance and resources for campus health and safety.

Course Access and Navigation

This course can be accessed using your UT Dallas NetID account on the eLearning website. Please see the course access and navigation section of the Getting Started with eLearning webpage for more information. To become familiar with the eLearning tool, please see the Student eLearning Tutorials webpage.
UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The eLearning Support Center includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Class Materials

The Instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Disability Services

It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact the Office of Student AccessAbility for a confidential discussion. OSA is located in the Student Services Building, suite 3.200. They can be reached by phone at (972) 883-2098, or by email at studentaccess@utdallas.edu.

For University's policies and procedures including COVID-19 guidelines and resources, please see https://go.utdallas.edu/syllabus-policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Instructor.