



CS/SE 6360.004 - Database Design

INSTRUCTOR:

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Office hours: TBA

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

CS 5343 or equivalent (Data structures and algorithms): 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).

Required Textbooks and Materials

"Fundamentals of Database Systems," 6th Edition, R. Elmasri and S. B. Navathe, Addison-Wesley Inc.

Evaluation:

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

Exam-1	20%
Exam-2	20%
Exam-3	20%
Quizzes	10% (5 quizzes)
Assignments	15% (5 assignments)
Final Project	15% (group project)

Letter grades will be assigned according to the following scale:

A: 93-100
A-: 90-92
B+: 87-89
B: 83-86
B-: 80-82
C+: 77-79
C: 70-76

Tentative Course Schedule

Chapter 1, 2: Introduction to Databases Chapter 3: Relational model and constraints Chapter 4: Basic SQL Chapter 5: Complex SQL * Chapter 6: Relational Algebra * Chapter 7, 8: ER/EER Model *	
Exam 1	
Project Presentations – ER/EER only	
Chapter 9: ER/EER to Relational Mapping * Chapter 10: Practical Database Design Methodology Chapter 13: SQL Programming * Chapter 15: Normalization * Chapter 16: Further Topics in Functional Dependencies	
Exam 2	
Chapter 17: File Structures Chapter 18: Indexing Structures Chapter 19: Query Processing and Optimization Chapter 21: Transaction Processing Chapter 22, 23: Concurrency Control and Recovery Chapter 24: Database Security	
Exam 3	

* There will be a practice session.

Communication

The best way of communication with the Instructor and course TA's is through email. Since classes are over crowded, when you send an email, make sure you include your course number, net-id and full name at the end of email message. Each student is responsible for the content/instructions of email communications.

Assignments and projects will be posted on eLearning system. Detailed information will be provided by the instructor as needed. Students will turn in their assignments/projects through eLearning portal.

Course Policies

- Assignments should be turned in no later than the deadline announced by the instructor of this class. Turn in what is completed by the deadline for partial credit. No late submissions will be accepted.
- You should do your own work on exams/projects and for assignments. Copying another student's work is not acceptable. Any indication of cheating and/or plagiarism on an exam/assignment/project will be an automatic 0 (zero) for the exam/assignment/project for all students involved. Solutions copied from the internet, instructor's manual, etc. will be also given zero credit.
- Regular class attendance and participation is expected and is the responsibility of each individual. There is a strong correlation between regular class attendance and good performance. If a student should elect not to attend a class, (s)he is responsible for any handouts, announcements, reading material and contents of missed lectures.
- During the lectures, cell phones are not allowed. This is due to two important reasons: 1. It

potentially causes distraction and this affects the overall quality of the lecture. 2. Research shows student performance is adversely affected by digital device use and those students who are engaged in cell phone/laptop use receive lower final grades as compared to their peers who do not use any electronic device and take paper and pen notes.

- Once you come to class, it is not appropriate to leave the class early for any reason. If you know you have to leave early for an unavoidable and important reason, make sure you sit close to the door and leave the classroom without distracting others while leaving. For the same reason, you also make sure you come to class on time.
- There will be no makeup exams unless there is a serious conflict that prevents you to take the exam on scheduled date and time and prior notification of such a condition is required.
- If there are questions/doubts about grading, please see the grader or instructor within one week of the grade announcement.

See also UTD's policies at <http://go.utdallas.edu/syllabus-policies>

This syllabus is subject to change at any time at the discretion of the Professor.