Course Information

Sections: CS 4347.502, SE 4347.502
Title: Database Systems
Schedule: Tu Th 7pm-8:15pm
Modality: Remote, MS Teams. Recorded lectures posted for asynchronous viewing.
No "asynchronous list" maintained. See the Attendance section on the following page.

Professor Information

Name: Dr. Sean Murthy
Office: ECSN 2.916 (not in office during the pandemic)
Contact: MS Teams (preferred) | sean.murthy@utdallas.edu | 972-883-2050
Office Hours: Mo We 10am-11am; Tu 5pm-6pm. No appointments given to meet during office hours.
Office hours are conducted in MS Teams during the pandemic. See link in eLearning.

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

CE 3345 or CS 3345 or SE 3345

Expectations (in addition to prerequisite courses)

Think in and about abstractions. Analyze textual data and identity patterns. Ability to look up and follow technical documentation and online help.

Spend at least 10 hours/week on own to complete reading and assessments. Willingness to "dig deep" and think critically. Learn and use eLearning, MS Teams, and other such systems on their own (see links).

Course Description

This course emphasizes the concepts and structures necessary for the design and implementation of database management systems. Topics include data models, data normalization, data description languages, query facilities, file organization, index organization, file security, data integrity, and reliability.

Courseware

Courseware will be in appropriate folders in eLearning. Always consult eLearning to make sure you have the most recent material prior to asking questions. (Material may need to be updated for various reasons.)

Policies

The university policies, my "Teaching Policies" document in eLearning, and the syllabus together define the complete set of policies to follow. The policies may seem onerous, but they exist to give clarity and reduce frustration. The syllabus highlights select teaching policies and defines policies specific to this class.

Please see the university policy regarding COVID-19.

Accommodations

If you need accommodations to complete this course, please obtain an accommodation letter from the Office of Student AccessAbility (OSA) in a timely fashion. **No retroactive accommodations**.

Communication

I do **not** read eLearning mails. Use the section-specific MS Teams team to ask questions about the course and receive announcements. Set up the app on all your devices to be notified for all activity in every channel.

Resort to private communication only if necessary. Use office hours for private consultation. Use Teams chat outside office hours. Mention the course number and section at the start of each chat session.

Avoid sending e-mails, but if you must, do so only for private communication **and** if I did not timely respond to an earlier Teams message. Begin the subject line with course number and section, and then an appropriate topic phrase. Messages and mails not following this scheme may not receive a timely reply.

I ignore queries that seek information already provided. Students should check Teams messages, mails, and eLearning before asking questions.

eLearning is used mostly to distribute courseware and administer assessment. The rest is on MS Teams.

Attendance

The CS department's attendance policy is suspended for remote classes during the pandemic. I encourage students to attend remote classes on schedule, and to view recordings in their entirety if following asynchronously. Regardless of their timing and location of viewing the lectures, students are responsible to complete readings and turn in assignments on schedule. **No "asynchronous list" maintained**.

Student Conduct

Students are expected to uphold the Comet Creed: *As a Comet, I pledge honesty, integrity, and service in all that I do*. Any violation of the student code of conduct, including but not limited to academic dishonesty and sexual misconduct, is reported to the Office of Community Standards and Conduct (OCSC).

Assessment and Grading

The final letter grade is based on a weighted aggregate computed for the following assessment components:

- **Individual assignments:** 25%
- **Mid-term exam and final exam:** 25% each
- **Term project:** 20% (delivered in milestones)
- **Class participation:** 5%

Extra credit, make up, dropped scores, and other requests to improve grades are not entertained. The term project is delivered in milestones throughout the term. The class-participation component includes participation in class and on MS Teams, eLearning, and other designated platforms.

From	To	Grade	From	To	Grade	From	To	Grade
97.0%	100%	A+	79.0%	81.9%	B-	62.0%	65.9%	D
92.0%	96.9%	A	76.0%	78.9%	C+	60.0%	61.9%	D-
89.0%	91.9%	A-	72.0%	75.9%	C	0.0%	59.9%	F
86.0%	88.9%	B+	69.0%	71.9%	C-			
82.0%	85.9%	B	66.0%	68.9%	D+			

In general, I grade only the exams. The TA/Grader grades all other assessment components. Consult the TA/Grader if you have questions on anything they graded and approach me if your question remains unanswered. All questions on grades should be raised within seven days of receiving the grade.

Conversations on grades can only be in person or in a call where I can ascertain I am speaking with the student in question. I will **not** discuss grades in a Teams message or e-mail even if you are OK with that.

Unless a university or CS department policy requires an exception, final grades once assigned cannot be changed. No negotiations, incompletes, or other arrangements entertained.

Textbook

Required:

Elmasri, R., Navathe, S.B. Fundamentals of Database Systems. 7th Edition. 2016.

Couse Learning Outcomes

1. Understand data modeling.
2. Understand the relational model and theory.
3. Understand normalization of relations.
4. Gain a fundamental understanding of SQL programming.
5. Understand data organization methods, indexing, and query processing.
6. Understand database integrity and concurrency.

Tentative Schedule of Topics

Sessions	Topics	Chapters
1	Syllabus review; Database environment	2
2	Database development process	1
3-5	Conceptual model (ER model)	3
6-7	Relational model	5
8-9	Converting ER schema to relational schema	9
10-14	SQL	6, 7
March 11	**Mid-term exam** (exam modality to be determined)	
16-20	SQL	6, 7
21	Normalization	14
22-24	Physical design	16, 17
25	Relational algebra	8
26-28	Query processing	18, 19
29	Transactions, Concurrency	20, 21
30	Logging and recovery	22
	Final exam: one day in the finals week	
May 17	**Final grades due**	

The schedule is **subject to change** at my discretion. I balance class time to enhance learning while also meeting all designated learning outcomes. In general, I do not focus on just covering topics in the time allotted in the schedule. **Events with bolded dates (instead of session number) are fixed** regardless of what material is covered before that date.