CSCE 4350: Fundamentals of Database Systems
University of North Texas

Instructor Contact

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Welcome to UNT!

As members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT's full Non-Discrimination Policy can be found in the UNT Policies section of the syllabus.

Course Description

This course covers topics including logical and physical database system organization, logical models, design issues, and secondary storage considerations. Students develop and practice skills through the use of projects and real-world database creation. This course is online and instruction and assignment submission will occur online through Canvas.

Communication Expectations

You will be expected to regularly check university email and attend class regularly. When you miss a class, you are expected to check Canvas shortly after class to be aware of assignments, quizzes, and other materials. Questions not answered in class are best asked before or after class. For in-depth assistance on course content, you are expected to meet with the TAs prior to meeting with the instructor. For quick questions, email is preferred, and you can expect a response within 48 hours during the work week (M-F). For involved questions or discussions not appropriate for the TAs, office hours are preferred. When you send emails, please use CSCE 4350 as part of your subject and sign your email with your name and UNT ID number. Feedback on assignments, exams, and grades will usually be posted within two weeks after the due date.

Course Objectives

By the end of the course, students will be able to:

1. Analyze a problem to determine its data requirements.
2. Create a database that satisfies the given data requirements.
3. Create, maintain and access data in a database using SQL.
4. Describe and demonstrate how B+-tree and hashing can increase the speed of data access.
5. Describe and implement the theory of functional dependencies for Database design.

Course Prerequisites

- Prerequisite(s): Programming Experience and Data Structures. CSCE 2110 is an enforced pre-requisite.

Course Structure

This course takes place 100% online. We may have several synchronous video conferences with links posted throughout the semester if needed. Other than that, your interaction with the instructor and with your fellow students will take place on Canvas. There are 16 weeks of content that you will move through. The instructor will open a new module of 1 or 2 weeks each. Participation in video conferences, if any, is optional. This course is not self-paced but self-directed and requires students to read the textbook, other course resources posted on canvas and practice the material independently. You must complete in sequential order ALL activities and assignments listed in each of the modules and take three exams to successfully finish this course.

Tentative topics
- Relational Model
- Database Design
- Relational Algebra
- Query Processing
- Procedural Language in SQL
- Normalization
- Indexes and B-Trees
- phpMyAdmin
- NoSQL
- APIs / REST
- AWS

Materials

Readings will all be fairly dense, so please search for additional resources (e.g. wikipedia, coursera lectures) as needed. All attempts will be made to provide sufficient resources for everyone.

Required Textbook:
- There is no text required for the course – all resources are online

Course communication: We will be using the Canvas discussion board
- Feel free to use the forum to ask questions of the group, ask about partners for problem sets, or to make comments that the rest of the class might find useful.
- The forum is primarily for timely, supplementary communication.
- Contact the instructor if you are not available to access the discussion forum after the second week of the course.

Technical Requirements and Skills

Part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technology issues.
- [Canvas Basics for UNT Students](https://online.unt.edu/canvas-basics-unt-students) (https://online.unt.edu/canvas-basics-unt-students)
  - [Canvas Technical Requirements](https://clear.unt.edu/supported-technologies/canvas/requirements) (https://clear.unt.edu/supported-technologies/canvas/requirements)
- [Canvas Technical Requirements](https://clear.unt.edu/supported-technologies/canvas/requirements) (https://clear.unt.edu/supported-technologies/canvas/requirements)

Technical Assistance
UNT IT Help Desk (http://www.unt.edu/helpdesk/index.htm[)](http://www.unt.edu/helpdesk/index.htm)
Email: helpdesk@unt.edu
Live Chat: https://aits.unt.edu/support/chat
Phone: 940-565-2324
In Person: Sage Hall, Room 330
Hours and Availability for Walk-In, Telephone, and Laptop Checkout: visit
https://aits.unt.edu/support for up-to-date hours and availability

For additional support, visit [Canvas Technical Help](http://community.canvaslms.com/docs/DOC10554-4212710328)
(http://community.canvaslms.com/docs/DOC10554-4212710328)

Rules of Engagement

Rules of engagement refer to the way students are expected to interact with each other and with their instructors. Here are some general guidelines:
- While the freedom to express yourself is a fundamental human right, any communication that utilizes cruel and derogatory language on the basis of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal, or state law will not be tolerated.
- Treat your instructor and classmates with respect in any communication online or face-to-face, even when their opinion differs from your own.

- Ask for and use the correct name and pronouns for your instructor and classmates.
- Speak from individual experiences. Use "I" statements to share thoughts and feelings. Try not to speak on behalf of groups or other individuals' experiences.
- Use your critical thinking skills to challenge other people's ideas, instead of attacking individuals.
- Avoid using all caps while communicating digitally. This may be interpreted as "YELLING!"
- Be cautious when using humor or sarcasm in emails or discussion posts as tone can be difficult to interpret digitally.
- Avoid using "text-talk" unless explicitly permitted by your instructor.
- Proofread and fact-check your sources.
- Keep in mind that online posts can be permanent, so think first before you type.

See these [Engagement Guidelines](https://clear.unt.edu/online-communication-tips) (https://clear.unt.edu/online-communication-tips) for more information.

Course Requirements

Readings, Discussions, Quizzes and Exams

Course Philosophy: In this course you will be evaluated more often than other courses, with weekly discussions, quizzes, assignments, and three exams. Consider the points given to each as a guide to the effort expected. Given the amount of material, it is suggested that for assignments and quizzes you focus on being succinct, and for readings you focus on the main issues.

Readings/Tutorials: Generally, discussions, quizzes and exams will be given based on the readings and lecture material. As will be clear in the first few weeks, quizzes will test your knowledge on the most important aspects of the readings only.

Assignments are designed to engage you in your learning, so you can begin to apply these principles in practice and tailor them to your needs.

Grading

The expected distribution of percentage is given below, this is subject to minor modification based on actual points given. Note, due to the nature of the course, discussions, exams and quizzes are a significant means of establishing your final grade, so please complete the assignments in a timely way and study appropriately prior to each quiz and exam.

- Assignments, discussions and quizzes: 65%
  - Canvas quizzes: 35%
  - Assignments: 30%
- Exams: 35%

- Midterm: 15%
- Final Exam: 20%

Grading Scale: A=above 90%, B=80%-89.99%, C=70%-79.99%, D=60%-69.99%, F=below 60%. No exceptions.

Course Evaluation

Student Perceptions of Teaching (SPOT) is the student evaluation system for UNT and allows students the ability to confidentially provide constructive feedback to their instructor and department to improve the quality of student experiences in the course. Spot evaluations will be available **November 11 - December 4, 2025**.

Course Temporary Calendar

of materials outside the canvas exam system unless otherwise specified in advance. You are strongly encouraged to attempt to solve the tasks iteratively and incrementally - write code that works first, but works poorly

Week	Dates	Activity Due
1	08/18/25 – 08/22/25	Introduction and Tools
2	08/25/25 – 08/29/25	Database Design and Entity Relationship Diagrams
3	09/01/25 – 09/05/25	SQL Part 1
4	09/08/25 – 09/12/25	SQL Part 2
5	09/15/25 – 09/19/25	SQL Hands-On 1
6	09/22/25 – 09/26/25	SQL Hands-On 2
7	09/29/25 – 10/03/25	Indexes and B-Trees
8	10/06/25 – 10/10/25	Midterm
9	10/13/25 – 10/17/25	phpMyAdmin
10	10/20/25 – 10/24/25	NoSQL
11	10/27/25 – 10/31/25	APIs / REST
12	11/03/25 – 11/07/25	AWS Data Management
13	11/10/25 – 11/14/25	AWS Part 2
14	11/17/25 – 11/21/25	Review
15	11/24/25 – 11/28/25	Thanksgiving Break
16	12/01/25 – 12/05/25	Final Exam

Course Policies

Assignment Policy and Content Responsibility

You are expected to learn course materials and complete all readings and assignments on time. Students are responsible for all content presented in lecture slides, in the videos, and required readings from the textbook. All class materials will be posted on Canvas. There are several course assignments such as homework assignments, exams, and weekly postings. You need to solve the problems given and submit your answers by or preferably before the due date. Please do not work on course assignments the day before they are due. Getting sick the day before the due date, it will not give you an extension. However, most course assignments have a 2-day emergency penalty free extension labeled as "Available Until" in Canvas. The emergency time extension should be used only to complete an assignment submission and NOT used to just start working on the assignment. There are no further extensions after the emergency extension. WE DO NOT ACCEPT ASSIGNMENTS SUBMISSIONS BY EMAIL.

Examination Policy

Exams will be on the computer using the Canvas quiz system. **Exams are "closed book"** - no use of materials outside the canvas exam system unless otherwise specified in advance. Exam days are posted and are considered fixed. **Missed exams:** Exams cannot be missed without prior arrangements or later documented proof of extenuating circumstances. We do not have make up exams. Time will be limited, and all work will be individual. You are strongly encouraged to attempt to solve the tasks iteratively and incrementally - write code that works first, but works poorly, and improve from there, rather than write perfect code top to bottom. Exams will focus on the most recent material but are expected to be cumulative in scope.

Technical errors during exams

If during an online quiz or exam there is a technical error which affects your ability to complete the assignment, you are immediately to let the TA and instructor know and the instructor will discuss ways to allow you to resume the test without giving an unfair advantage. In the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will extend the time windows and provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor.

Late Policy

UNT instructors have the prerogative to accept or not to accept late work. All assignments are due by specified date at 11:59 PM Central Time. Note that 20% of the grade will be deducted for each day the assignment is late. You will get 0 grade if the assignment is 2 days (48 hours) late. A request for missing submissions may be sent at the discretion of the TA or instructor, but is not guaranteed, and a reduction of points may also occur in a way that is consistent for the rest of the class. Given the frequency of assignments and quizzes, and this flexible late policy, there may be a significant lag between submission and entry into the grade book for already-documented small-point assignments.

Extra Credit Options

There are no planned extra credit activities for this course. However, the instructor has the right to design at any time during the course an extra credit needed to enhance or promote course

participation. In the unlikely situation that extra credit activity is designed, these will be totally optional. Students do not have to participate on an extra credit activity as a requirement to get an A in the course. These not mandatory activities cannot be substituted or make-up. They are optional.

Attendance Policy

You are expected to work on lectures and to complete all readings and learning activities independently. You are responsible for keeping up with the materials posted on Canvas. While attendance will not be taken into grades, you will be expected to know and understand the requisite topics and concepts. You are responsible for checking announcements often to stay connected with the whole class about upcoming events, assignments, or activities. Also check out your Canvas Calendar for assignment due dates so you can plan your semester accordingly. There is no need to let the instructor know you have missed a class, or you will miss future classes; however, you are responsible for keeping up with the material covered in the class if you are not active. We do not have excused abscess or permissions to be absent. If a class is missed, you are expected to proactively reach out to classmates, the TA, or the instructor if there are any questions. Again, if you miss a class (weekly online participation), you are still responsible for knowing everything that took place. Your absence does not change the due date of an assignment.

There is no direct participation grading, but in the past there has been a strong correlation between engagement and accomplishment in courses - especially for those that are struggling with the material. Feel free to prioritize your time, but prioritize wisely.

Grading Issues

Once a grade has been posted for a course assignment, grading issues need to be addressed with graders first. Do not contact the instructor unless the grading issue was not solved by graders. Additionally, we only have one week after a grade has been posted to address grading errors or any other issues. We cannot correct grades that have been posted in canvas longer than one week.

Syllabus Change Policy

This syllabus, course policies, course calendar, the grading scale, grades given on assignments, due dates, and any other course details are subject to change at any time without prior notice or consent. Approximate point values are expected to vary but will be fixed when the assignment or exam is given.

Digital Materials Policy

This course has digital components. To fully participate in this class, students will need internet access to reference content on the Canvas Learning Management System. If circumstances change, you will be informed of other technical needs to access course content. Information on how to be successful in a digital learning environment can be found at Learn Anywhere (https://online.unt.edu/learn).

Course Penalties

Incurring any of the following penalties disqualifies you to receive any extra credit if available, and penalizes your grades as indicated next.

- Cheating: Cheating on tests and programs will be dealt with very severely. You must make a diligent effort to prevent other students from seeing your test answers. If taking an exam

in proximity with another classmate, keep your paper or computer screen covered and do not let your eyes wander during tests. You should not receive or give help to others while taking an exam. We also monitor responses to course assignments generated by AI resources such as ChatGPT.

- First offense of Receiving or giving help while taking an exam = -25% deducted from grade. Second offense of Receiving or giving help while taking an exam = 0% in the exam. The exam will not be graded. One of more incidents of cheating in exam = 0% in Exam Cheating on a second exam = F in the course

- Plagiarism: Plagiarism is a form of cheating. Copying someone else's program, changing a few lines, and turning it in as your own is plagiarism; thus, this is cheating. Each student is to write his or her own programs. You should not receive or give help to others on any program that goes beyond help in deciphering syntax errors. First time penalty = 0% in assignment, second time penalty = F in the course.

- Inappropriate multiple requests of changing a grade for any of the following statements or something similar: (1) Being in probation, (2) last semester, (3) core course, (4) financial situation, (5) Being sick, (6) suspended from the university, (7) family issues, (8) others.

UNT Policies

Academic Integrity Policy

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. For Department of Computer Science and Engineering Academic Integrity Policy, please refer to https://engineering.unt.edu/cse/students/resources/academic-integrity.html

ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website (https://disability.unt.edu/).

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Blackboard for contingency plans for covering course materials. For more details, refer to Campus Closures Policy (https://policy.unt.edu/policy/15-006).

Retention of Student Records

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Blackboard online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

Acceptable Student Behavior

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT's Code of Student Conduct (https://deanofstudents.unt.edu/conduct) to learn more.

Access to Information - Eagle Connect

Students' access point for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail Eagle Connect (https://it.unt.edu/eagleconnect).

Student Evaluation Administration Dates

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the SPOT website (http://spot.unt.edu/) or email spot@unt.edu.

Getting Help

Student Support Services

- Registrar (https://registrar.unt.edu/registration)
- Financial Aid (https://financialaid.unt.edu/)
- Student Legal Services (https://studentaffairs.unt.edu/student-legal-services)
- Career Center (https://studentaffairs.unt.edu/career-center)
- Multicultural Center (https://edo.unt.edu/multicultural-center)

- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services) (https://studentaffairs.unt.edu/counseling-and-testing-services)
- [Student Affairs Care Team](https://studentaffairs.unt.edu/care) (https://studentaffairs.unt.edu/care)
- [Student Health and Wellness Center](https://studentaffairs.unt.edu/student-health-and-wellness-center) (https://studentaffairs.unt.edu/student-health-and-wellness-center)
- [Pride Alliance](https://edo.unt.edu/pridealliance) (https://edo.unt.edu/pridealliance)

Academic Support Services

- [Academic Resource Center](https://clear.unt.edu/canvas/student-resources) (https://clear.unt.edu/canvas/student-resources)
- [Academic Success Center](https://success.unt.edu/asc) (https://success.unt.edu/asc)
- [UNT Libraries](https://library.unt.edu/) (https://library.unt.edu/)
- [Writing Lab](http://writingcenter.unt.edu/) (http://writingcenter.unt.edu/)
- [MathLab](https://math.unt.edu/mathlab) (https://math.unt.edu/mathlab)