CSCE 5350: Fundamentals of Database Systems  
COURSE SYLLABUS, Spring 2023  
Department of Computer Science and Engineering  
University of North Texas

**Instructor**  
J. U. QUEVEDO-Torrero  
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**Office:** Discovery Park Building  F201F  
Office hours are for spring 2023 only from January 17 to May 5, 2023.

**Teaching Assistants:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Office Hours</th>
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<tbody>
<tr>
<td>Thandra, Deeksha</td>
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<td>Tadepalli, Dinesh</td>
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**Course Description:**  
This course presents the main aspects of relational databases such as database design, query languages and normalization. It includes an overview of Relational Algebra and SQL, and the Oracle database management system. Students will consider several aspects involved in the design of databases such as avoiding data redundancy, security, data consistency and integrity. Students will have several hands-on activities with the Oracle system in which they will create databases, execute queries, check integrity constraints, and write procedures, functions, triggers and programs in the PL/SQL programming language.
This course has 12 **Course Learning Objectives:**

Students will be able to:

1. Describe the fundamental concepts of relational databases such as database system, database management system, database architecture, data independence, database languages and the roles of people involved in database systems.
2. Demonstrate an understanding of the relational data model.
3. Analyze database requirements and determine the entities involved in the system and their relationship to one another.
4. Develop the logical design of the database using data modeling concepts such as entity-relationship diagrams.
5. Transform an information model into a relational database schema such as converting entity-relationship diagrams into relational tables.
6. Formulate, using relational algebra, solutions to a broad range of query problems.
7. Formulate, using SQL, solutions to a broad range of query and data update problems.
8. Manipulate a database using SQL.
9. Utilize a wide range of features available in a Database Management System package such as Oracle.
10. Use a database management system such as ORACLE to create, populate, constraint, update, insert and query a relational database.
11. Design programming code to create stored procedures, stored functions, triggers and packages that manipulate a relational database.
12. Improve the database design by normalization.

**Course Structure**

**In-person Section: 5350.001, Time:** Monday 5:30PM-8:20PM  **Location:** GAB 105

**In-person Section: 5350.001, Time:** Tuesday 8:30AM-11:20AM  **Location:** NTDP B185

**Credit hours:** 3  
**Dates:** January 15 to May 12, 2023

**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 the course calendar 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 GA/TA 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, no Saturday, no Sunday). For involved questions or discussions not appropriate for the GA/TA, office hours are preferred.
Tentative topics
Relational Model
Database Design
Relational Algebra
Query Processing
Procedural Language in SQL
Normalization

PREREQUISITE
Programming Experience and Data Structures

Materials
All materials (readings, videos, tutorials, quizzes, and assignments) will be accessible online and posted on the course Canvas site on the respective class day at the latest.

REQUIRED TEXTS
All lecture slides will be available in Canvas

Technical Requirements and Skills
Minimum Technology Requirements
• Computers are required for exams and in-class activities
  o In-class exams: You will need to bring a laptop on exam days. These will be done individually on your computer in class. You will be expected to connect to the UNT wireless network.
  o Quizzes and exams will use the Canvas quiz system
    • Canvas Technical Requirements (https://clear.unt.edu/supported-technologies/canvas/requirements)
• Computers are required during class
  o There will be occasional in-class activities along with lecture that are not required, but may help in understanding and applying the material
  o Students will be expected to Download and install Oracle Database 21c Express Edition (https://www.oracle.com/database/technologies/xe-downloads.html) and be able to open a Oracle Live SQL (https://livesql.oracle.com/apex/f?p=590:1000), Google Colab and other software as needed and indicated in class.

Course Requirements
Readings, Quizzes, and Exams

In-Class Activities (online-discussions, quizzes): These activities are meant to focus students on the important aspects of the readings or lectures.
Exams: Exam days are already posted and are considered fixed. Missed exams: Exams cannot be missed without prior arrangements or later documented proof of extenuating circumstances.

Assignments. There are some assignments. You need to solve the problems given and submit your answers by the due date. Assignments due dates already include extra time for completion. Please do not work on assignments the day before they are due. Getting sick the day before the due date, it will not give you an extension. Some assignments might be submitted after the due date with a 20% late penalty per day. WE DO NOT ACCEPT ASSIGNMENTS SUBMISSIONS BY EMAIL.

Project: There is a term project in which you implement a relational database system. No late submission accepted. More details will be posted on Canvas.

GRADING

Your course grade will be determined by a combination of the following:

- In-Class Activities (online-discussions, quizzes): 15%
- Assignments: 15%
- Project: 20%
- Exams: 50%
  - Exam I: 15%
  - Exam II: 15%
  - Final Exam: 20%

Total 100%

Grading Scale: A=>90, B=80-89.9, C=70-79.9, D=60-69.9, F=0-59.9 %.

Extra Credit Options
Extra credit is optional. You do not have to participate on them to get an A in the course. These not mandatory activities cannot be substituted or make-up. They are optional. However, you have to qualify to participate in extra credit options.

To qualify for extra credit, you should not have incurred in any of the penalties indicated in the next section.

- **Being on-time**: 0 points <80%, 1 point= 80%-89.9%, 1.5 points 90%-99.9, 2 points=100% (points applied on final grade)
- **Physical attendance**: 0 points <80%, 1 point= 80%-89.9%, 1.5 points 90%-99.9, 2 points=100% (points applied on Exam 3)
- **Early submissions** up 5% in indicated assignment/exam. If taking an exam, submit before due date.
- **Others indicated in class**: These depend on the assignment.
Penalties
Incurring any of the following penalties disqualifies you to receive any extra credit.
1. **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. Keep your paper covered and do not let your eyes wander during tests. You should not receive or give help to others while taking an exam.
   - 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 or more incidents of cheating in exam = 0% in Exam
   - Cheating on a second exam = F in the course
2. **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.
3. 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.

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.

Expectations
1. **Examination Policy:** Exams will be on the computer using the Canvas quiz system. You need to bring a laptop on the appropriate exam days. Quizzes and exams must be taken in the classroom unless special accommodations have been made through the Office of Disability Accommodation (ODA). Another other accommodations must be given by prior arrangement with the instructor, otherwise documentation proving an extenuating circumstance will have to be provided after the missed exam. Time will be limited, and all work will be individual. Exams will focus on the most recent material but are expected to be cumulative in scope.
2. **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 quiz or exam proctor 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.

3. Each student will be responsible for completing the assigned reading, exercises and attending classes.

4. **Attendance and in-class activities:** You are expected to attend lectures and to complete all readings. Most classes have in-class activities which need to be completed in class. In-class activities are not for homework. You can eliminate one-in-class activity. There is no need to let the instructor know you have missed a class; however, you are responsible for keeping up with the material covered in the class if you are not present. If a class is missed, you are expected to proactively reach out to classmates, the TA, or the instructor if there are any questions. **There will be a sign-in sheet to record attendance for class analytics and administration.**

5. If you miss a class, you are still responsible for knowing everything that took place. Your absence does not change the due date of an assignment.

6. Generally, late submission of any class work is not allowed. However, some late assignments might be submitted with reduction of points 20% per weekday.

7. Topics or discussions unrelated to class, suggestions about the logistic of the course are all welcome outside class, but are considered disruptive during class and will affect negatively your “class contribution” grade, and may impact at the discretion of the instructor your final grade.

8. If you use laptops and other electronic devices, they should be used to enhance your class engagement level.

9. **Cellular Telephones and Pagers in Class and Lab:** Along with your instructors, many students find these both distracting and rude. As a courtesy to all involved, please either turn off your cellular telephone or pager or disable the ring tone during lecture and lab. If you must use the phone, please leave the classroom or lab and go to a place that will not interrupt others.

10. **Course Schedule**

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<tr>
<th>Date</th>
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<tr>
<td>1/16-1/20</td>
<td>Class 1</td>
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<td>1/23-1/27</td>
<td>Class 2</td>
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<td>1/30-2/3</td>
<td>Class 3</td>
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<td>2/6-2/10</td>
<td>Class 4</td>
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<td>2/13-2/17</td>
<td>Class 5, Exam 1</td>
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<td>2/20-2/24</td>
<td>Class 6</td>
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<td>2/27-3/3</td>
<td>Class 7</td>
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<td>3/6-3/10</td>
<td>Class 8</td>
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<td>3/13-3/17</td>
<td>UNT Spring Break</td>
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<td>3/20-3/24</td>
<td>Class 9</td>
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<td>3/27-3/31</td>
<td>Class 10, Exam 2</td>
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<td>4/3-4/7</td>
<td>Class 11</td>
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<td>4/10-4/14</td>
<td>Class 12</td>
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<td>4/17-4/21</td>
<td>Class 13</td>
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<td>4/24-4/28</td>
<td>Class 14, Exam 3</td>
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<td>5/1-5/5</td>
<td>Class 15</td>
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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.

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 accommodation 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.

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 Canvas 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" (noreply@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

Technical Assistance
UIT Help Desk (http://www.unt.edu/helpdesk/index.htm)
Email: helpdesk@unt.edu
Phone: 940-565-2324
In Person: Sage Hall, Room 130
Walk-In Availability: 8am-9pm
Telephone Availability:
• Sunday: noon-midnight
• Monday-Thursday: 8am-midnight
• Friday: 8am-8pm
• Saturday: 9am-5pm
Laptop Checkout: 8am-7pm

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)
- Student Affairs Care Team (https://studentaffairs.unt.edu/care)
- Student Health and Wellness Center (https://studentaffairs.unt.edu/student-health-and-wellness-center)
- Pride Alliance (https://edo.unt.edu/pridealliance)
- Academic Support Services
- Academic Resource Center (https://clear.unt.edu/canvas/student-resources)
- Academic Success Center (https://success.unt.edu/asc)
- UNT Libraries (https://library.unt.edu/)
- Writing Lab (http://writingcenter.unt.edu/)
- MathLab (https://math.unt.edu/mathlab)