

Database Management

INFW385M

UT-Austin iSchool Syllabus
Summer 2026

2026-05-13

Description

The primary goal of this class is to learn principles and practices of database management and database design. Over the course of the semester we will discuss relational database design, data types, sorting, indexing, and normalization. We will learn and practice the fundamentals of Structured Query Language (SQL) and how it can be used to store and retrieve data from a relational database, database security, and the impact of databases on society. Class modules will build up a theory of database design with instruction, examples, and exercises that focus on the fundamentals of creating and normalizing database structures, as well as developing increasingly sophisticated queries against multiple related tables. For the later modules of the class we will learn the fundamentals of database design using SQLite. SQLite is an embedded relational database management system used at companies such as Google and Apple. We use SQLite as our primary platform because it is commonly (and freely) available and provides substantially the same functionality as commercial databases such as Microsoft SQL Server and Oracle. No previous programming or database experience is required for this course.

Details

Important note: The information presented in this syllabus is subject to expansion, contraction, change, or stasis during the semester. In case of conflict between versions, the copy on Canvas takes precedence.

Course Number

77054

Prerequisites

graduate standing

Time

Online, Asynchronous

Place

Online, Asynchronous

Dates

04 JUN 2026–14 AUG 2026

Final Exam

None

Instructor

Mick McQuaid

Email

mcq@utexas.edu

Office

1616 Guadalupe St, Room 5.402

Office Hours

By appointment in my office or on Zoom at <https://utexas.zoom.us/my/mickmcquaid>

Materials

No textbook is required for this course. This is intentional. In general, I prefer OER (open educational resources). There are many wonderful books available about database management and I can recommend a few, but keep in mind that they are not required. Examples include Date (2004), Robinson et al. (2015), and Wang et al. (2008). The website for SQLite contains recommendations for books about SQLite at <https://sqlite.org/books.html> but, again, these are not required. I only share these because some students ask for them.

Learning Outcomes

The student successfully completing this class will:

- Be able to construct a single-user relational database that runs on a personal laptop
- Be able to retrieve and manage data from an externally administered database
- Understand the role and risks involving databases in contemporary society
- Understand a typical CRUD (Create, Read, Update, Delete) database application
- Know about alternatives to relational databases, including ORMs and NoSQL databases

Class Format

This is a hands-on, project focused course, so regular completion of modules is important. The class is completely asynchronous, so you must take responsibility to complete modules in a timely manner.

Schedule

Week 01 (04 Jun) Databases and society — **What is a database? due 05 Jun** — **Measuring your data shadow, due 10 Jun**

Week 02 (11 Jun) Database management systems — Database Terms — Entities and Types — **Defining an entity, due 12 Jun** — **Problematic data collection, due 15 Jun**

Week 03 (18 Jun) Database schemas — Entity Relationship Modeling — **Words and word order, due 19 Jun** —

Week 04 (25 Jun) Primary keys and foreign keys — Data security — Normalization

Week 05 (02 Jul) Tables and relationships — **Normalizing a simple database, due 03 Jul** — **Normalizing your database, due 08 Jul**

Week 06 (09 Jul) SQLite Intro — SQLite Usage — Using terminal interfaces (optional) — **Using SQLite, due 10 Jul** — Introducing your final project

Week 07 (16 Jul) Sorting and indexing — **All sorts of sorts, due 17 Jul** — SELECT statements — **Understanding SELECT, due 20 Jul** — JOINing tables — **SELECTs using JOINS, due 22 Jul** — Troubleshooting queries

Week 08 (23 Jul) Building database schemas — Final project: expanding your database — **Schemas and queries for your database, due 29 Jul**

Week 09 (30 Jul) More SQL — Categorizing SQL statements — Generative AI and SQL statements — ACID principles

Week 10 (07 Aug) CRUD apps — Datasette, a database application — ggsq, a visualization tool for SQL — CSV files and tools to manage them

Week 11 (14 Aug) ORMs — NoSQL — Graph databases

Week 12 (17 Aug) Final exam period (no final exam in this course) — **Final project due, 17 Aug**

Grading

I plan to grade assignments within two weeks of their due date except where circumstances interfere. The grading scale used along with the grade components follow.

Table 1: Scores are not rounded

letter grade		lower bound		upper bound
A	>=	94.0%		
A-	>=	90.0%	& <	94%
B+	>=	87.0%	& <	90%
B	>=	83.0%	& <	87%
B-	>=	80.0%	& <	83%

letter grade		lower bound		upper bound
C+	>=	77.0%	&	< 80%
C	>=	73.0%	&	< 77%
C-	>=	70.0%	&	< 73%
D	>=	60.0%	&	< 70%
F				< 60%

POLICIES

Important Note: The policies of the University are undergoing change. The following *may* be superseded by the policies at <https://utexas.instructure.com/courses/1377522>, which is a Canvas course containing the honor code which you *must* adhere to, as well as much of the following information. A better URL may be <https://utexas.instructure.com/enroll/TP964H> if for some reason you are not enrolled in the site.

Attendance

All concerns about attendance recording must be resolved within 72 hours of the class session in question. In other words, you can't come to the instructor weeks later and insist you were present on such-and-such a day.

Assignment Submission

All assignments must be submitted via Canvas. No assignment should be submitted via email. Any assignment submitted via email will receive a grade of zero. It may be tempting to try to submit assignments via email when you have trouble with Canvas but the correct response is to contact tech support and resolve the problem with Canvas.

Extra credit and grade rounding

There is no extra credit available in this class and grades are not rounded. You receive exactly the letter grade corresponding to the score you achieve.

Disability and Access

The university is committed to creating an accessible and inclusive learning environment consistent with university policy and federal and state law. Please let me know if you experience any barriers to learning so I can work with you to ensure you have equal opportunity to participate fully in this course. If you are a student with a disability, or think you may have a disability, and need accommodations please contact Disability and Access (D&A). Please refer to D&A's website for contact and more information: <http://community.utexas.edu/disability/>. If you are already registered with D&A , please deliver your Accommodation Letter to me as early as possible in the semester so we can discuss your approved accommodations and needs in this course.

Policy on Academic Integrity

Students who violate University rules on academic misconduct are subject to the student conduct process and potential disciplinary action. A student found responsible for academic misconduct may be assigned both a status sanction and a grade impact for the course. The grade impact could range from a zero on the assignment in question up to a failing grade in the course. A status sanction can range from probation, deferred suspension and/or dismissal from the University. To learn more about academic integrity standards, tips for avoiding a potential academic misconduct violation, and the overall conduct process, please visit the Student Conduct and Academic Integrity website at: <http://deanofstudents.utexas.edu/conduct>.

Class Recordings

Class recordings are reserved only for students in this class for educational purposes and are protected under FERPA. The recordings should not be shared outside the class in any form. Violation of this restriction by a student could lead to Student Misconduct proceedings.

Artificial intelligence

The creation of artificial intelligence tools for widespread use is an exciting innovation. These tools have both appropriate and inappropriate uses in classwork. The use of artificial intelligence tools (such as ChatGPT) in this class is encouraged but must be documented. Usually, you should include a lengthy disclaimer at the end of the assignment as a separate Appendix telling which generative AI tool was used, e.g., ChatGPT, and what it was used for, including the final, revised prompts for each answer generated. Failure to document will be considered a cheating offense, punishable under the rules for academic integrity. The

disclaimer must be specific and thorough. A brief, vague statement will not be considered sufficient.

Personal Pronouns

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender identity & expression, and nationalities. Class rosters are provided to the instructor with the student's legal name, unless they have added a "chosen name" with the registrar's office, which you can do so here: https://utdirect.utexas.edu/apps/ais/chosen_name/. I will gladly honor your request to address you by a name that is different from what appears on the official roster, and by the pronouns you use (she/he/they/ze, etc). Please advise me of any changes early in the semester so that I may make appropriate updates to my records. For instructions on how to add your pronouns to Canvas, visit <https://utexas.instructure.com/courses/633028/pages/profile-pronouns>.

Basic Needs Security

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. UT maintains the UT Outpost (<https://deanofstudents.utexas.edu/emergency/utoutpost.php>) which is a free on-campus food pantry and career closet. Furthermore, please notify the professor if you are comfortable in doing so. This will enable him to provide any resources that he may possess.

Mental Health Information

Students who are struggling for any reason and who believe that it might impact their performance in the course are urged to reach out to Bryce Moffett if they feel comfortable. This will allow her to provide any resources or accommodations that she can. If immediate mental health assistance is needed, call the Counseling and Mental Health Center (CMHC) at 512-471-3515 or you may also contact Bryce Moffett, LCSW (iSchool CARE counselor) at 512-232-4449. Bryce's office is located in FAC18S and she holds drop in Office Hours on Wednesday from 2-3pm. For urgent mental health concerns, please contact the CMHC 24/7 Crisis Line at 512-471-2255.

Carrying of Handguns on Campus

Students in this class should be aware of the following university policies related to Texas' Open Carry Law: Students in this class who hold a license to carry are asked to review the [university policy regarding campus carry](#).

- Individuals who hold a license to carry are eligible to carry a concealed handgun on campus, including in most outdoor areas, buildings and spaces that are accessible to the public, and in classrooms.
- It is the responsibility of concealed-carry license holders to carry their handguns on or about their person at all times while on campus. Open carry is NOT permitted, meaning that a license holder may not carry a partially or wholly visible handgun on campus premises or on any university driveway, street, sidewalk or walkway, parking lot, parking garage, or other parking area.
- Per my right, I prohibit carrying of handguns in my personal office. Note that this information will also be conveyed to all students verbally during the first week of class. This written notice is intended to reinforce the verbal notification, and is not a “legally effective” means of notification in its own right.

LGBTQIA+ Community

As an institution committed to creating a safe and inclusive learning environment, The University of Texas at Austin strictly prohibits discrimination, harassment, or marginalization based on sexual orientation or gender identity under Title IX. If you encounter any discrimination or harassment, please seek support from the Title IX office.

Formerly, I encouraged students to complete the Campus Climate Survey. The link I have been given for that appears to now be inactive and I can't find a replacement.

That link was: <https://app.smartsheet.com/b/form/d70ce9db84a3403ab00394e4617f8f3b>

I did find the following URL which indicates a possible future survey: <https://sites.utexas.edu/mental-health-institute/school-climate-improvement/> but the page is currently ambiguous.

If you experience any form of discrimination or harassment, please contact the Title IX office for support. If you do not wish to contact the UT Title IX office, you may view confidential community resources at <https://titleix.utexas.edu/community-resources-confidential> .

The links I used to give to find more information about the LGBTQIA+ community are all broken and googling doesn't reveal any replacements. I would like to know of any relevant resources students have found that I could then include in this space.

I am committed to creating a safe and inclusive learning environment for all students. This includes fostering an environment of respect, openness, and understanding in the

classroom and actively working to address any discrimination or harassment that may occur. If you wish to display your pronouns on your Canvas page, you can find a guide here: <https://utexas.instructure.com/courses/633028/pages/profile-pronouns>. Furthermore, you can include a “preferred name” by viewing the following link to class rosters, which come with the student’s legal name (unless an addition of a preferred name is made): https://utdirect.utexas.edu/apps/ais/chosen_name/.

TITLE IX DISCLOSURE

Beginning January 1, 2020, Texas Education Code, Section 51.252 (formerly known as Senate Bill 212) requires all employees of Texas universities, including faculty, to report to the Title IX Office any information regarding incidents of sexual harassment, sexual assault, dating violence, or stalking that is disclosed to them. Texas law requires that all employees who witness or receive information about incidents of this type (including, but not limited to, written forms, applications, one-on-one conversations, class assignments, class discussions, or third-party reports) must report it to the Title IX Coordinator. Before talking with me, or with any faculty or staff member about a Title IX-related incident, please remember that I will be required to report this information.

Although graduate teaching and research assistants are not subject to Texas Education Code, Section 51.252, they are mandatory reporters under federal Title IX regulations and are required to report a wide range of behaviors we refer to as sexual misconduct, including the types of misconduct covered under Texas Education Code, Section 51.252. Title IX of the Education Amendments of 1972 is a federal civil rights law that prohibits discrimination on the basis of sex – including pregnancy and parental status – in educational programs and activities. The Title IX Office has developed supportive ways and compiled campus resources to support all impacted by a Title IX matter.

If you would like to speak with a case manager, who can provide support, resources, or academic accommodations, in the Title IX Office, please email: supportandresources@austin.utexas.edu. Case managers can also provide support, resources, and accommodations for pregnant, nursing, and parenting students.

For more information about reporting options and resources, please visit: <https://titleix.utexas.edu>, contact the Title IX Office via email at: titleix@austin.utexas.edu, or call 512-471-0419.

Texas Senate Bill 17

Texas Senate Bill 17, the recent law that outlaws diversity, equity, and inclusion programs at public colleges and universities in Texas, does not in any way affect content, instruction or discussion in a course at public colleges and universities in Texas. Expectations

regarding academic freedom for teaching and class discussion have not been altered post-SB 17, and students should not feel the need to censor their speech pertaining to topics pertaining to race and racism, structural inequality, LGBTQ+ issues, or diversity, equity, and inclusion.

University Writing Center

I strongly encourage you to use the services offered by the University Writing Center. The UWC offers 45-minute, one-on-one consultations with UT students on any piece of writing. You may visit up to three times per short paper and more frequently for long projects. Consultants can work with you once per day. The consultants are well trained, and the cost of the service is covered in your tuition. If you wish to make an appointment, you may do so through the UWC website: uwc.utexas.edu.

References

Date, C. J. 2004. *Introduction to Database Systems*. Pearson Education.

Robinson, Ian, Jim Webber, and Emil Eifrem. 2015. *Graph Databases, 2nd Edition*. O'Reilly Media.

Wang, Ting, Jochem Vonk, Benedikt Kratz, and Paul Grefen. 2008. "A Survey on the History of Transaction Management: From Flat to Grid Transactions." *Distributed and Parallel Databases* 23 (3): 235–70. <https://doi.org/10.1007/s10619-008-7028-1>.