

CIS 4301-120 - 11858 - Database Theory and Practices

Spring 2022

Texas A&M University - Central Texas

COURSE DATES, MODALITY, AND LOCATION

Course Dates: 18 Jan - 13 May

Modality: This is an Independent Study course that uses the A&M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com/>].

Location: N/A

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Emmet Gray

Office: Founder Hall, Room 323Q

Phone: No office phone, COBA Admin - (254) 519-5437

Email: Canvas Inbox (preferred) or TAMUCT email (e.gray@tamuct.edu)

Office Hours:

My normal "walk in/no appointment" office hours are shown below. I'm also available outside of those times by appointment.

- Monday and Wednesday: 2:00-2:30

I am also available for "virtual" office hours via WebEx, Zoom, Teams, etc. Please contact me via Canvas to schedule a time to be online.

Mode of instruction and course access:

This is an Independent Study course with video lectures. It makes extensive use of the TAMUCT Canvas Learning Management System (<https://tamuct.instructure.com>). The course syllabus, schedule, supplemental readings, class announcements, power point slides, learning modules, homework assignments, exams and other course related documents will be posted on Canvas. Each student is responsible for the posted material, and should check Canvas several times a week for updates

Student-instructor interaction:

I typically respond to Canvas email within 24 hours except on weekends. I can meet with students (either virtually or face to face at the university) by appointment.

Emergency Warning System for Texas A&M University-Central Texas

SAFEZONE. SafeZone provides a public safety application that gives you the ability to call for help with the push of a button. It also provides Texas A&M University-Central Texas the ability

to communicate emergency information quickly via push notifications, email, and text messages. All students automatically receive email and text messages via their myCT accounts.

Downloading SafeZone allows access to push notifications and enables you to connect directly for help through the app.

You can download SafeZone from the app store and use your myCT credentials to log in. If you would like more information, you can visit the SafeZone website [www.safezoneapp.com].

To register SafeZone on your phone, please follow these 3 easy steps:

1. Download the SafeZone App from your phone store using the link below:
 - o iPhone/iPad: [<https://apps.apple.com/app/safezone/id533054756>]
 - o Android Phone / Tablet
[<https://play.google.com/store/apps/details?id=com.criticalarc.safezoneapp>]
2. Launch the app and enter your myCT email address (e.g. {name}@tamuct.edu)
3. Complete your profile and accept the terms of service

COURSE INFORMATION

Course Overview and description:

Examine database concepts and structures and understand file and data management principles underlying database construction. Learn fundamental types of database models, with emphasis on relational databases and major non-relational forms. Develop skills in analysis, design, development, and optimization of working database applications on a variety of problems. Prerequisite(s): 12 hours of CIS courses or permission of department chair.

Course Objective:

This course covers the essential database concepts required for developing databases for business users. Particular emphasis is given "normalization" and to the increasing use of Internet, commonly available analysis tools, and big data.

Student Learning Outcomes:

A student successfully completing this course will be able to:

1. Explain the role of databases and database applications in business.
2. Use data modeling to create relational databases.
3. Describe and distinguish among normalized forms
4. Design entity-relationship diagrams using standard notation
5. Transform data models into database concept designs using referential integrity constraints
6. Create SQL statements for constructing database components and for retrieving information from databases.
7. Describe the special needs of multi-user databases and techniques to control data concurrency issues.
8. Use security best practices to prevent unauthorized access or modification of data
9. Analyze a business scenario and build a "real world" database

The following is a "cross walk" of the overall program learning objectives and the course-level student learning outcomes listed above:

Course Learning Outcomes	Demonstrate proficiency in written communications on technical subjects	Recognize a reasoned resolution to an ethical challenge in computing context	Design appropriate computing solutions to business problems	Apply knowledge to address the IT security needs of an organization	Demonstrate knowledge proficiency in the area of concentration
1	x				
2			x		
3			x		x
4			x		
5			x		
6					x
7					x
8				x	
9			x		

Competency Goals Statements (certification or standards):

Section not used

Required Reading and Textbook(s):

Required:

Database Processing: Fundamentals, Design & Implementation, 16th Edition

Authors: Kroenke, Auer, Vandenberg

Edition: 16th

Publisher: Pearson, 2022

ISBN: 978-0-13-693017-4

Note: An electronic version of the books may be available.

Note: A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

Supplemental Material:

The course textbook will be supplemented with other materials including lecture notes, handouts, oral presentations, industry articles, research paper readings, case studies, Power Point presentations etc.

Required Reading:

The student is expected to read and review all material presented in the assigned chapter prior to class.

COURSE REQUIREMENTS

Course Requirements

Examinations: There will be two exams, one midterm and one final exam. Each is worth 12.5 points. The midterm covers chapters 1-6, and the final covers chapters 7-12. Exams will be conducted at home and will be timed.

Quizzes: There will be 6 take-home small quizzes. Each quiz is worth 5 points. The quizzes will be available via Canvas for a short period of time (typically 1 week), will be conducted at home and will be timed.

Assignments: There will be 6 take-home assignments. Each assignment will be worth 5 points. Assignments will typically be available on Canvas for 2 weeks. Multiple submissions are typically allowed.

Term Project: There will be 1 term project that will be worth 15 points. This assignment will typically be available on Canvas for 4 weeks.

Point Scores: The final grade for the course will be based upon the following:

Item	Quantity	Points	Total	Percent
Exams	2	12.50	25.000	25.0%
Quizzes	6	5.00	30.000	30.0%
Assignments	6	5.00	30.000	30.0%
Term Project	1	15.00	15.000	15.0%
Total			100.000	100.0%

Grading Criteria Rubric and Conversion

Grade	Points	Percent
A	100 - 90 points	100 - 90%
B	89 - 80 points	89 - 80%
C	79 - 70 points	79 - 70%
D	69 - 60 points	69 - 60%
F	59 - 0 points	59 - 0%

Note: Point scores are not rounded

Exams & Quizzes: Exams and quizzes will receive a numeric score (0-100) each. Scores will be converted to points and totaled as shown in the example below:

Quiz	Score	Percent	Max Points	Points
Quiz 1	95	95%	5.00	4.75
Quiz 2	100	100%	5.00	5.00
Quiz 3	80	80%	5.00	4.00
Quiz 4	85	85%	5.00	4.25
Quiz 5	86	86%	5.00	4.30
Quiz 6	88	88%	5.00	4.40

Requirements for Assignments: Assignments must follow the requirements as stated in the Canvas assignment system; demonstrate the concepts; get proper results; be organized, use comments, and use best practices.

The following grading rubric is used for assignments:

Criterion	% of Grade	Excellent (100%)	Adequate (80%)	Poor (60%)	Not Met (0%)
Assignment Requirements	20%	Meets all of the requirements of the assignment	Minor details of the requirements are missing	Significant details of the requirements are missing	Significant portions of the requirements are missing
Chapter Specific Objectives	35%	Fully demonstrates the concepts of the chapter	Applies major and minor concepts of the chapter	Applies only major concepts of the chapter	Chapter concepts not in evidence
Gets proper results	25%	No Errors, Gets Proper Results	Minor errors, Gets Proper Results	Minor errors, does not produce proper results	Does not produce proper results
Best Practices	15%	Database uses best practices at every opportunity	Minor issues with best practices	Large portions have best practices issues	No best practices in evidence
Spelling, grammar, formatting	5%	No more than 1 issue	Between 2-5 issues	Between 5-10 issues	>10 issues

File Naming Convention: Submit your assignments via Canvas using file names with the following format:

CIS4301 [AssignmentID] [LastName.FirstName].[extension]

Example:

CIS4301 Assignment1 Doe.John.docx

Posting of Grades: All student grades will be posted on the Canvas Grade Book and students should monitor their grading status through this tool. Grades will be posted within 7 days after of the due date.

Late Policy: Exams, Quizzes, and Assignments are due by midnight on the date assigned in Canvas. Typically, this is 11:59 PM on Friday. A 5-point penalty will be assessed for each day a requirement is late.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

Week	Start	End	Class Activity	What's Due	Notes
1	01/18/2022	01/21/2022	Chapter 1 & App A	Syllabus Quiz	
2	01/24/2022	01/28/2022	Chapter 2	Assignment 1	
3	01/31/2022	02/04/2022	Chapter 3	Quiz 1	
4	02/07/2022	02/11/2022	Chapter 3 Drills	Assignment 2	
5	02/14/2022	02/18/2022	Chapter 4	Quiz 2	
6	02/21/2022	02/25/2022	Chapter 5	Assignment 3	
7	02/28/2022	03/04/2022	Chapter 6	Quiz 3	
8	03/07/2022	03/11/2022	Midterm Review	Midterm Exam	Midterm
	03/14/2022	03/18/2022			Spring Break
9	03/21/2022	03/25/2022	Chapter 7	Assignment 4	
10	03/28/2022	04/01/2022	Chapter 8	Quiz 4	
11	04/04/2022	04/08/2022	Chapter 9	Assignment 5	
12	04/11/2022	04/15/2022	Chapter 10A	Quiz 5	
13	04/18/2022	04/25/2022	Chapter 10A Drills	Assignment 6	
14	04/25/2022	04/29/2022	Chapter 11	Quiz 6	
15	05/02/2022	05/06/2022	Chapter 12 & 13	Term Project	
16	05/09/2022	05/13/2022	Final Review	Final Exam	Final

Chapters:

1. Introduction
Appendix A. Getting Started with Microsoft Access 2019
2. Introduction to Structured Query Language
3. The Relational Model and Normalization
4. Database Design Using Normalization
5. Data Modeling with the Entity-Relationship Model
6. Transforming Data Models into Database Designs
7. SQL for Database Construction and Application Processing
8. Database Redesign
9. Managing Multiuser Databases
- Online 10A. Managing Databases with Microsoft SQL Server 2019
11. The Web Server Environment
12. Data Warehouses and Business Intelligence Systems
13. Big Data, NoSQL, and the Cloud

University Calendar

Date	Activity
01/17/2022	Martin Luther King, Jr Day (University Closed)
01/18/2022	Add, Drop and Late Registration Begins for 16- and First 8-Week Classes
01/18/2022	Classes Begin for Spring Semester
01/20/2022	Deadline for Add, Drop, and Late Registration for 16- and First 8-Week Classes
01/25/2022	Deadline to Drop First 8-Week Classes with No Record
02/01/2022	Deadline for Teacher Education Program Applications
02/02/2022	Deadline to Drop 16-Week Classes with No Record
02/25/2022	Deadline to Drop First 8-Week Classes with a Quit (Q) or Withdraw (W)
03/11/2022	Classes end for 1st 8-Weeks Session
03/15/2022	Deadline for Clinical Teaching/Practicum Applications
03/15/2022	Deadline for Faculty Submission of First 8-Week Final Class Grades
03/14/2022	Spring Break (No Classes - Administrative Offices Open)
03/15/2022	Spring Break (No Classes - Administrative Offices Open)
03/16/2022	Spring Break (No Classes - Administrative Offices Open)
03/17/2022	Spring Break (No Classes - Administrative Offices Open)
03/21/2022	Class Schedule Published for Summer Semester
03/21/2022	Add, Drop, and Late Registration Begins for Second 8-Week Classes
03/21/2022	Classes Begin for Second 8-Week Session
03/23/2022	Deadline for Add, Drop, and Late Registration for Second 8-Week Classes
03/25/2022	Deadline for Spring Graduation Application for Ceremony Participation
03/28/2022	Deadline to Drop Second 8-Week Classes with No Record
04/01/2022	Deadline for GRE/GMAT Scores to Graduate School Office
04/01/2022	Deadline for School Counselor Program Applications
04/04/2022	Registration Opens for Summer Semester
04/08/2022	Deadline to Drop 16-Week Classes with a Quit (Q) or Withdraw (W)
04/16/2022	Deadline for Final Committee-Edited Theses with Committee Approval
04/29/2022	Deadline to drop Second 8-week Classes with a Quit (Q) or Withdraw (W).
05/13/2022	Deadline to Withdraw from the University for 16- and Second 8-Week Classes
05/13/2022	Spring Semester Ends
05/13/2022	Deadline for Applications for Tuition Rebate for Spring Graduation (5pm)
05/13/2022	Deadline for Spring Degree Conferral Applications to the Registrar's Office
05/14/2022	Spring 2022 Commencement at Bell County Expo 7 PM

TECHNOLOGY REQUIREMENTS AND SUPPORT

Technology Requirements.

This course will require that you use Microsoft Word, Excel, Access, and Visio.

Visio is not part of the normal Office suite, so you will need to get an account on "Azure Dev Tools for Teaching" so that you can download Microsoft Visio for your own PC. You should use the instruction in Supplemental Materials to obtain an account. *I highly recommend that you do NOT wait until the first day of class to process your request.*

Software for this course requires that you use a 64-bit Windows based PC (preferably Windows 10). This software is not available on the Apple Mac.

I will demonstrate in lecture how to download and install the specific version of Microsoft SQL Server that will be used in the course.

This course will use the A&M-Central Texas Instructure Canvas learning management system. We strongly recommend the latest versions of Chrome or Firefox browsers. **Canvas no longer supports any version of Internet Explorer.**

Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com/>] or access Canvas through the TAMUCT Online link in myCT [<https://tamuct.onecampus.com/>]. You will log in through our Microsoft portal.

Username: Your MyCT email address. Password: Your MyCT password

Canvas Support

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select "Chat with Canvas Support," submit a support request through "Report a Problem," or call the Canvas support line: 1-844-757-0953.

For issues related to course content and requirements, contact your instructor.

Online Proctored Testing

A&M-Central Texas uses Proctorio for online identity verification and proctored testing. This service is provided at no direct cost to students. If the course requires identity verification or proctored testing, the technology requirements are: Any computer meeting the minimum computing requirements, plus web camera, speaker, and microphone (or headset). Proctorio also requires the Chrome web browser with their custom plug in

Other Technology Support

For log-in problems, students should contact Help Desk Central.
24 hours a day, 7 days a week:

Email: helpdesk@tamu.edu
Phone: (254) 519-5466
Web Chat: <http://hdc.tamu.edu>

Please let the support technician know you are an A&M-Central Texas student.

Technology issues are not an excuse for missing a course requirement – make sure your computer is configured correctly and address issues well in advance of deadlines.

COURSE AND UNIVERSITY RESOURCES, PROCEDURES, AND POLICIES

Drop Policy

If you discover that you need to drop this class, you must complete the Drop Request Dynamic Form through Warrior Web.

[<https://dynamicforms.ngwebsolutions.com/casAuthentication.ashx?InstID=eaed95b9-f2be-45f3-a37d-46928168bc10&targetUrl=https%3A%2F%2Fdynamicforms.ngwebsolutions.com%2Fsubmit%2FForm%2Fstart%2F53b8369e-0502-4f36-be43-f02a4202f612>].

Faculty cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Registrar's Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar's Office immediately. You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

Academic Integrity

Texas A&M University-Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. All academic misconduct concerns will be referred to the Office of Student Conduct. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more information regarding the Student Conduct process,
[<https://www.tamuct.edu/student-affairs/student-conduct.html>].

If you know of potential honor violations by other students, you may submit a report,
[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0].

Academic Accommodations

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Warrior Center for Student Success, Equity and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations, please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information, please visit our [Access & Inclusion](#) Canvas page (log-in required)
[<https://tamuct.instructure.com/courses/717>]

Important information for Pregnant and/or Parenting Students

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit Student Affairs [<https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html>]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these requirements and guidelines online, please visit the website [<http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf>].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

Tutoring

Tutoring is available to all A&M-Central Texas students, both virtually and in-person. Student success coaching is available online upon request.

If you have a question, are interested in becoming a tutor, or in need of success coaching contact the Warrior Center for Student Success, Equity and Inclusion at (254) 501-5836, visit the Warrior Center at 212 Warrior Hall, or by emailing WarriorCenter@tamuct.edu.

To schedule tutoring sessions and view tutor availability, please visit [Tutor Matching Services](https://tutormatchingservice.com/TAMUCT) [<https://tutormatchingservice.com/TAMUCT>] or visit the Tutoring Center in 111 Warrior Hall.

Chat live with a remote tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive online tutoring support at no additional cost. This tool provides tutoring in over 40 subject areas except writing support. Access Tutor.com through Canvas.

University Writing Center

University Writing Center: Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (A&M–Central Texas) is a free service open to all A&M–Central Texas students. For this semester, the hours of operation are from 10:00 a.m.-5:00 p.m. Monday thru Thursday in Warrior Hall 416 (with online tutoring available every hour as well) with satellite hours available online only Monday thru Thursday from 6:00-9:00 p.m. and Saturday 12:00-3:00 p.m.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students' ideas and writing,

our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via WCOOnline at <https://tamuct.mywconline.com/>. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor by making an appointment via WCOOnline at <https://tamuct.mywconline.com/>. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor..

University Library

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 400,000 eBooks and 82,000 journals, in addition to the 96,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place virtually through WebEx, Microsoft Teams or in-person at the library. [Schedule an appointment here](https://tamuct.libcal.com/appointments/?g=6956) [<https://tamuct.libcal.com/appointments/?g=6956>]. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our Library website [<http://tamuct.libguides.com/index>].

OPTIONAL POLICY STATEMENTS

A Note about Sexual Violence at A&M-Central Texas

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Wellness and Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/compliance/titleix.html) [<https://www.tamuct.edu/compliance/titleix.html>].

Behavioral Intervention

Texas A&M University-Central Texas cares about the safety, health, and well-being of its students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, please make a referral to the Behavioral Intervention Team. Referring your concern shows you care. You can complete the [referral](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2) online [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/bit) website for more information [<https://www.tamuct.edu/bit>]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5805.

INSTRUCTOR POLICIES

Policies related to absence, grading, etc.

- You are responsible for all class material presented during an absence.
- All work is submitted through Canvas and due on the specified due date/time.
- A penalty of 5 points per day is applied to late Exams, Quizzes, and Assignments.
- Most assignments can be submitted multiple times, even after grading
- Late penalties are also applied to resubmitted items
- Missed exams, quizzes, and assignments will receive a grade of zero.

My Personal Statement

- You will receive feedback in the form of graded assignments within 7 days after the due date.
- I want you to read the feedback that I provide to you (your personal grading notes, Canvas emails, and Canvas discussion forums).
- I am almost always available via email and typically respond within 24 hours except on weekends.
- I prefer email over phone conversations

Copyright Notice.

Students should assume that all course material is copyrighted by the respective author(s). Reproduction of course material is prohibited without consent by the author and/or course instructor. Violation of copyright is against the law and Texas A&M University-Central Texas' Code of Academic Honesty. All alleged violations will be reported to the Office of Student Conduct.

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