

CIS 5316-110, CRN 81124, ADVANCED DATABASE MANAGEMENT Fall 2021

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

Aug 23, 2021 - Dec 10, 2021

This is a 100% online asynchronous course.

This is a 100% online course and uses the A&M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com/>]. The course syllabus, schedule, supplemental readings, class announcements, power point slides, learning modules and other course related documents will be posted on canvas. Each student is responsible for the posted material, and should check canvas at least weekly for updates. The course outline in this syllabus shows the basic schedule for the semester. New weekly assignment instructions will be posted EACH MONDAY morning throughout the semester, and assignments and discussions and will have an associated Sunday midnight deadline.

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Dr. Anitha Chennamaneni

Office: Texas A&M University Central Texas FH 323I

Phone: (254) 519-5463

TAMUCT Email: anitha.chennamaneni@tamuct.edu

Preferred Email: Course Canvas Site, Inbox tool.

Alternate (if Canvas is down): anitha.chennamaneni@tamuct.edu

Office Hours: **Monday** 11 am – 1 pm (Room FH 323I)

Wednesday 11 am – 1 pm (Virtual: Canvas Inbox /Email/ Phone)

Other days and times by appointment only

Student-instructor interaction

Please send all course related email correspondence through Canvas Inbox Tool. Please use TAMUCT email only when Canvas is not available. I check email several times a day during the week and at least once during the weekends. I will respond within 24 hours and within 48 hours on Saturday through Sunday. Please do not hesitate to stop by my office during the scheduled office hours or contact me via phone / Canvas Conversations Tool or TAMUCT email, if there are any personal problems or challenges that are hindering your regular progress in the course.

WARRIOR SHIELD

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

Warrior Shield is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in Warrior Shield through their myCT email account.

Connect to Warrior Shield by [911Cellular](https://www.tamuct.edu/police/911cellular.html) [<https://www.tamuct.edu/police/911cellular.html>] to

change where you receive your alerts or to opt out. By staying enrolled in Warrior Shield, university officials can quickly pass on safety-related information, regardless of your location.

Fall 2021 Return to Campus Plan. For the most recent campus information regarding COVID-19 see the Texas A&M University-Central Texas [Fall 2021 Return to Campus Plan](https://www.tamuct.edu/covid19/) [https://www.tamuct.edu/covid19/]

COURSE INFORMATION

Course Overview and description:

This course examines the methodologies of database management including data models, database design, normalization, SQL/ PLSQL, NoSQL, performance and reliability, distributed database, data dictionaries, data integrity, security, and privacy.

Course Objectives:

Successful completion of this course should enable the student to

- Apply methodologies such as entity relationship diagrams and normalization in the implementation and modification of database
- Create and use tables, views, updatable views, triggers and stored procedures
- Use the advanced SQL to create subqueries and correlated queries
- Use SQL functions to manipulate dates, strings, and other data
- Use SQL statements in a procedural programming language to manipulate database data
- Discuss what concurrency control is and what role it plays in maintaining the database's integrity
- Explain distributed database management systems (DDBMSs) and their components
- Analyze factors that affect the performance of a database system
- Formulate efficient queries and tune the DBMS for optimal performance
- Discuss the four major approaches of the NoSQL data model and how they differ from the relational model
- Discuss integrity, security, and privacy issues: review SQL standard and implementation-specific commands

Required Reading and Textbook(s)

- Textbook: Database Systems: Design, Implementation, and Management, Coronel and Morris, 13th Edition, Copyright 2019, CENGAGE, ISBN-13: 9781337627900

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.

Optional / Reference Texts:

- T-SQL Fundamentals (3rd Edition) 3rd Edition by Itzik Ben-Gan, ISBN: 9781509302000
- Beginning SQL Server 2012 Programming by Atkinson & Vieira, ISBN: 9781118102282
- American Psychological Association. (2009). Publication Manual of American Psychological

Association (6th ed.). Washington, D.C

Purdue Online Writing Lab for APA: <https://owl.english.purdue.edu/owl/section/2/10/>

- **Supplementary Material:** The course textbook will be supplemented with other materials including handouts, oral presentations, industry articles, videos, research paper readings, case studies, power point presentations etc.
- **On-Line References** TBA
- **Students preferring to use their own computers** are required to have products, data encodings, file names, system structure, and products equal to those provided in the computer lab and the server used in class.
- **Current publications** - The campus library contains numerous books and periodicals relating to Computer Science. The student should take advantage of this resource by visiting the library.

COURSE REQUIREMENTS

- **Reading Assignments:** All assigned chapters will be used as basis for class /canvas discussions. Students are expected to study the assigned readings before each class session.
- **Canvas Discussions:** Students are required to participate in the class/canvas discussions throughout the semester. There will be 4 discussions in canvas, each worth 25 points. The maximum total for canvas discussions is 100 points. Students are expected to post thoughtful and comprehensive responses to the discussion questions as well as respond on a timely basis to a minimum of two classmates' postings. Failure to do so will result in point loss. Post your initial response to the discussion topic prior to 11.59 pm Wednesday and respond to other student's postings later in the week. Please do not be late in your postings as other students will be waiting on your post to respond to later in the week. Discussion topics, due dates and the grading rubric specific to discussion evaluations are available in canvas and should be used as a guide when participating in discussions. It is each student's responsibility to accumulate notes from assigned readings, supporting videos, and other sources and reference them in the postings to support one's own arguments, add an insight to classmate's postings and/or challenge classmates' postings. Sources when referenced must be cited in the postings. Follow-up posts need to be meaningful and should promote in depth discussions on a topic at higher level of thinking. A mere cursory response such as "I agree" or "I disagree" or a "good post" without any substantive content to backup would result in point loss. In all postings, students are expected to observe proper rules of netiquette in both oral and written communications and conduct in a professional manner. Late submissions are not allowed for discussion forums.
- **Examinations** - There will be 3 exams. Each will be worth 150 points. Makeup exams will be given ONLY when arrangements have been made PRIOR to the class meeting.
- **Homework Assignments** - There will be 5 assignments. All assignments are submitted through the Canvas course web site. All assignment submissions require a zipped copy of your assignment that allows me to unzip, open, and view the contents or other documents associated with the assignment. Please include your name and assignment identification in the zip file name (YourName_ChX.zip). You should also note that archives such as .rar, .gz, .tar, .7z, (among others) are not zip archives. Assignment submissions failing to provide the specified naming, identification, and format will not be accepted for grading. All assignments are due on the specified due date and time. Assignments turned in after due dates are considered late. 5 points will be deducted for each day the assignment is late. Special circumstances need to be discussed with the instructor ahead of time when possible

- **Semester Long Project:** There will be one group project where student teams will work as a group to design and build a large complex database. The submitted project should include a working database and all of the artifacts of the design process (requirements documents, business rules, data flow diagrams, Data Dictionary, ER diagrams, SQL statements to build and populate the database, views, queries, triggers, stored procedures, meeting minutes, etc.).

Please see separate write – up in the canvas for the project details. For the group project, students can self-select into groups of 2 to 3 members. Students must choose their teammates before the end of the second week. Projects turned in after due date are considered late. 5 points will be deducted for each day the project is late. Special circumstances need to be discussed with the instructor ahead of time when possible.

Group Projects: Each group will select a leader, and the group will have meetings outside class time either online or face to face. I expect each member to fully participate on group projects. All group members will receive the same grade for the group projects. However, I reserve the right to make exceptions to that practice as circumstances such as performance imbalance or communication issues warrant. Poor individual contributions to the group project as noted by your group members will result in a poorer individual grade on the group project.

Grading Criteria Rubric and Conversion

Assignment	Points	Percent	My Grade
Exam 1	150 points	15%	
Exam 2	150 points	15%	
Exam 3	150 points	15%	
Homework Assignments	250 points	25%	
Team Project	200 points	20%	
Canvas Discussions	100 points	10%	
Total	1000 points	100%	

89.5-100%	895-1000 points	A
79.5-89.4%	795-894 points	B
69.5-79.4%	695-794 points	C
59.5-69.4%	595-694 points	D
0-59.4%	0-594 points	F

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 for weekly assignments, discussions, quizzes and exams will be posted within 7 days following the due date.

Grading Policies

- The instructor reserves the right to make changes to this syllabus during the course of the semester for the benefit of the students. Any changes that effect grades or grading will be made in writing.
- All work is submitted through Canvas and due on the specified due date/time. Work turned in after due date is considered late. 5 points will be deducted for each day the assignment is late. Special circumstances need to be discussed with me ahead of time when possible. Missed assignments, projects, and examinations will receive a grade of zero.
- Any work not submitted in the proper format is rejected and receives no credit.
- Incidents of violations of academic integrity, such as plagiarism or turning in the work of others as your own work, will result in a cap on the maximum number of points that can be earned in this class. The cap will be 600 points resulting in a best case grade of “D” for the class. Students whose assignment contains plagiarized information i.e., failing to cite and reference the information source in properly applying APA formatting to citations and references, copying and /or using content from unauthorized sources etc. will receive a 0 for the assignment and possibly a referral to Student Affairs.
- Instructor reserves the right to supplement the material presented in the text with additional material including handouts, oral presentations, industry articles, videos, research paper readings, case studies, power point presentations etc. for the benefit of the students

COURSE OUTLINE AND CALENDAR

Course Outline

The instructor reserves the right to make changes to this syllabus. Any changes that effect grades or grading will be made in writing.

Week	Week of:	Topic	Assignments Due
1	08/23/2021	Course Welcome, Introduction, and Expectations <u>Chapter 1</u> – Database Systems & Assigned Readings	Read Syllabus in-depth Post to Introductory Meet & Greet Discussion forum
2	08/30/2021	<u>Chapter 2</u> – Data Models & Assigned Readings	Discussion Post 1

3	09/06/2021	<u>Chapter 3</u> – The Relational Database Model & Assigned Readings	Homework Assignment 1 Due Group contract due
4	09/13/2021	<u>Chapter 4</u> – Entity Relationship (ER) Modeling & Assigned Readings	Homework Assignment 2 Due
5	09/20/2021	<u>Chapter 5</u> – Advanced Data Modeling & Assigned Readings	Discussion post 2 Due
6	09/27/2021	<u>Chapter 6</u> – Normalization of Database Tables & Assigned Readings	Homework Assignment 3 Due
7	10/04/2021	<u>Chapter 7</u> – Introduction to Structured Query Language (SQL) & Assigned Readings	Exam 1 Covers Chapters 1 to 6
8	10/11/2021	<u>Chapter 8</u> – Advanced SQL & Assigned Readings	Homework Assignment 4 Due
9	10/18/2021	<u>Chapter 9</u> – Database Design & Assigned Readings	Homework Assignment 5 Due
10	10/25/2021	<u>Chapter 10</u> – Transaction	Group Project Deliverables 2 & 3

		Management and Concurrency Control & Assigned Readings	Due
11	11/01/2021	<u>Chapter 11</u> – Database Performance Tuning and Query Optimization & Assigned Readings	Discussion Post 3 due
12	11/08/2021	<u>Chapter 12</u> – Distributed Database Management Systems & Assigned Readings	Exam 2 Covers Chapters 7 to 11
13	11/15/2021	<u>Chapter 13</u> – Business Intelligence and Data Warehouses & Assigned Readings	Discussion Post 4 due
14	11/22/2021	<u>Chapter 14</u> – Big Data Analytics and NoSQL & Assigned Readings	
15	11/29/2021	<u>Chapter 16</u> – Database Administration and Security & Assigned Readings	Team Project due
16	12/06/2021		Exam 3 covers Chapters 12, 13, 14 and 16

Important University Dates

Please see the important university dates at <https://www.tamuct.edu/registrar/academic-calendar.html>

TECHNOLOGY REQUIREMENTS AND SUPPORT

Technology Requirements

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): [<http://hdc.tamu.edu>]

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

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

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),
[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),
[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 Office of Access 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](https://tamuct.instructure.com/courses/717) 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) [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](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf) 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, on a remote online basis. Visit the Academic Support Community in Canvas to view schedules and contact information. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Student success coaching is available online upon request.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, success coaching, or have any other question, contact Academic Support Programs at (254) 501-5836, visit the Office of Student Success at 212F Warrior Hall, or by emailing studentsuccess@tamuct.edu.

Chat live with a 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 the Fall 2021 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 WOnline 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 WOnline at <https://tamuct.mywonline.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. 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) [<http://tamuct.libguides.com/index>].

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>].

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](#) online [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](#) 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 254-501-5800.

OTHER POLICIES

- At all times in the class, please observe proper rules of netiquette in your oral and written communication and conduct yourself in a professional manner
- The Operation of the Online Course and Being an Online Student. Online learning requires students to be very self-disciplined and demands regular and consistent participation in the class. Please read the document posted on Canvas on what makes a successful online student.

Be sure you understand and are prepared to comply with all required class assignments and deadlines. If you are not able to comply, for any reason, you must contact me immediately.

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.