BUSA 526, Section # 81843, DATABASE MANAGEMENT
COURSE SYLLABUS: FALL 2024

INSTRUCTOR INFORMATION

Instructor: Anil Kumar
Office Location: 2075 or 2073 or 2065
Office Hours: TR 10:00-11:30 am (Zoom) and W1:20-3:20 pm (Dallas)
Office Phone: 903-886-5692
Office Fax: 903-886-5693
University Email Address: anil.kumar@tamuc.edu
Preferred Form of Communication**:** email
Communication Response Time: within 24 hours

COURSE INFORMATION

Textbook(s) Required: None. Links to all readings for the course will be made available on D2L.
Software Required: MySQL Workbench will be utilized as the database tool in this course.
Students will be provided links in D2L for downloading the tool.

Optional Texts and/or Materials: SQL Queries for Mere Mortals: A Hands-On Guide to Data
Manipulation in SQL (3rd Edition) by Viescas, Hernandez ISBN: 978-0321992475

Bulletin Description

This course provides a foundation for the design, implementation, and management of database
systems. Students will study both design and implementation issues with an emphasis on
database management issues.

Student Learning Outcomes

At the end of this course students will be able to:

1. understand and articulate fundamental database concepts, including data modeling, relational algebra, normalization, and SQL, and explain their importance in the context of database management systems (DBMS).
2. analyze real-world data requirements and design effective database schemas that adhere to best practices, ensuring data integrity, consistency, and efficient retrieval.
3. demonstrate the ability to implement database systems using SQL and other database management tools, and manage these systems to ensure high performance, reliability, and security.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Students are expected to be proficient in D2L and the MS-Office suite. Students are expected to submit their assignments using MS-Office tools via D2L, where all course materials will be accessible.

Instructional Methods

The course employs a combination of brief lectures and hands-on activities to enhance your comprehension and application of database management concepts. We analyze data requirements for organizations using real-world events from the past year, and peer learning as an instruction method is actively encouraged through a group database project.

Student Responsibilities or Tips for Success in the Course

I strongly encourage you to create a schedule for your learning in the course. Each one of you has a life outside of this course and the schedule will help you manage your time without being overwhelmed.

Teamwork is crucial for academic and professional success. Engaging with classmates can enhance your learning experience. Don't hesitate to ask questions and seek guidance when needed. Communicate, clearly and timely, to ensure that roles in your team are well defined, deadlines are set, and expectations are realistic.

Login into D2L on a regular basis to make sure that you have the latest information about the course.

I am there to help you succeed in your learning journey. Email me when you are challenged by course materials, and I'll help you. All emails will be answered within 24 hours.
.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% or Below

Total points corresponding to the final letter grades

A = 450 - 500 Points	Data architect
B = 400 - 449 Points	Database administrator
C = 350 - 399 Points	Data engineer
D = 300 - 349 Points	Data analyst
F = < 300 Points	Needs training

Weights of the assessments in the calculation of the final letter grade.
Example:

Individual Assignments	40%
Team project	40%
Midterm Exam	20%
TOTAL	100%

Assessments

Individual Assignments
Each week students will complete either a reflective journal or a real-world problem situation. The former will help you reflect on your learnings and share insights gained while the latter will help you demonstrate your understanding by applying concepts to propose practical solutions.

Team Project
As part of a semester-long team project, you'll leverage your database management knowledge to create an application that tackles a real-world challenge. Your team will start by identifying the problem, create a data model based on business requirements, design the database schema, build the application, and test it thoroughly. Each team is required to document their work and present the application at the end of the semester.

Midterm Exam
The exam assesses students' understanding of key concepts related to database management covered in first seven weeks of the course.

Submit all assignments, projects and exams via D2L by the specified deadline. **Late submissions will incur a 10% deduction for each day beyond the due date.** For example, if a submission is late by two days, then 20% will be deducted. All submissions will be graded and posted on D2L within 7 business days.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool
https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

All emails will be returned within 24 hours. Please make sure to include the course number and section in the email subject.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Students are required to meet the expectations listed below.

- Professional Behavior: It is important that you always maintain a professional demeanor, including during "electronic communication". TAMUC expects this from you, as do current and future employers. In discussing concepts and ideas we need to respect viewpoints, even when we disagree.
- Regular and Timely Participation: You are expected to read all course materials and be prepared to engage in the learning process.
- Assignments:
  - Submitted assignments must be correctly formatted and free of grammatical and stylistic errors. Students in BUSA 526 should be proficient with software for word processing, spreadsheets, databases, graphics, and presentations, and with web browsers and search engines. Spelling and grammatical errors will detract from grade!
  - Assignments must be submitted on time. Assignments are due at the date and time listed. Start working on each assignment as soon as you possibly can so that you can ask questions in a timely manner if needed. If you do not submit assignments on time, you will lose 10% of the grade per day late.
  - Assignments must be complete. You must complete and submit assignments at the specified due date and time to receive credit for the assignment. Please don't submit work that is only "half-finished".
  - Please submit all assignments in a format that is compatible with Microsoft Office. Save all documents as doc or docx files. Do not submit assignments as PDF documents.
  - Back-ups are required: You are required to back up all your assignments on a disk that can be submitted to me upon my request. If work is lost due to insufficient back-up, you will not have the opportunity to recreate and submit later.
- Good communication skills are a requirement of all management professionals. Company recruiters consider these skills critical. Therefore, 10% of the grade of any submitted paper or report will be based on its quality. Quality refers to following the required format, order, and layout of the submission, the inclusion of graphs and charts where appropriate, and the use of correct grammar, spelling, and punctuation. Keep professionalism in mind. Submit your work in the same way you would to your manager in the business world. All submissions are to be typed using Times New Roman, font size 12 and single spaced. Plagiarism will result in an automatic fail.

- E-mail: All communication for students will be posted as an announcement (and email) on D2L. Therefore, students must routinely check e-mail sent to your respective TAMUC email accounts.
- Make-up or late assignments will only be accepted if you obtain university approved documentation for your excuse. There are no make-up assignments for poor performance on a previous assignment.
- Changes to schedule: While I plan to stick to the class schedule, there may be occasions to modify the schedule. In these cases, all changes will be posted as a D2L announcement and an e-mail to your TAMUC account. It is your responsibility to become aware of any such changes.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedures 13.99.99.R0.01
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03
Undergraduate Student Academic Dishonesty Form

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf

Graduate Student Academic Dishonesty Form

http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Velma K. Waters Library Rm 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus

document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

A&M-Commerce Supports Students' Mental Health

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit **www.tamuc.edu/counsel**

AI use policy [Draft 2, May 25, 2023]

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors 'guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

 13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty

BUSA 526 AI use course policy:

As your professor, I advocate for the use of AI tools like ChatGPT to enrich your learning journey, boost productivity, and advance your career. AI can be an invaluable asset for idea generation, research, and honing analytical skills. However, it's essential to use these tools responsibly and ethically to preserve the integrity of your work and adhere to academic standards.

Acceptable Use of AI:
1. **Research and Idea Generation:** Use AI to help brainstorm topics, generate ideas, and gather preliminary information.

2. **Improving Writing:** Use AI for proofreading to enhance the clarity, grammar, and structure of your writing.

3. **Personalized Learning:** Engage with AI to improve your understanding of course material and develop relevant skills, such as prompt engineering and queries etc.

Unacceptable Use of AI:
1. **Plagiarism:** Presenting AI-generated content as your own without appropriate attribution is strictly forbidden. All submissions must be original and demonstrate your personal understanding and effort.

2. **Cheating:** Using AI to complete assignments, quizzes, or exams, undermining the learning process, is not allowed.

3. **Fabrication of Data:** Generating or altering data using AI tools to misrepresent research findings or results is unacceptable.

4. **Misrepresentation:** Presenting AI-generated content or ideas your own is prohibited.

Guidelines for Responsible Use:
1. **Cite AI Sources:** If you use AI tools to gather information or generate content, provide appropriate citations and acknowledge the use of these tools in your work.

2. **Maintain Academic Integrity:** Ensure that your submissions reflect your own understanding, analysis, and synthesis of the material. Use AI as a supplement, not a substitute, for your learning and effort.

3. **Transparency:** Be honest about the extent to which AI has assisted you in your work. When in doubt, consult with the instructor on how to appropriately integrate AI into your assignments.

4. **Learn and Grow:** Use AI as a learning tool to enhance your knowledge and skills. Strive to understand and internalize the concepts rather than relying solely on AI outputs.

Consequences of Misuse: Violations of this AI policy will be treated as academic misconduct and will be subject to the university's academic integrity procedures. Penalties may include failing the assignment, failing the course, or further disciplinary action as outlined in the university's academic integrity policy.

By adhering to these guidelines, you can effectively harness the power of AI to support your educational journey while maintaining the highest standards of academic integrity and professionalism.

The course AI Policy developed by Dr. Greg Lubiani was adapted for this course.
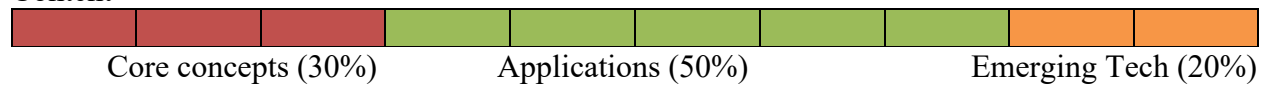
Department or Accrediting Agency Required Content

COURSE OUTLINE / CALENDAR

This is a tentative schedule and is subject to change at the instructor's discretion. All changes will be communicated to the students.

A classroom is a place to meet and discuss ideas. As you read the assigned materials, you should ask yourself, "What does this reading tell you about database management? How can you relate it to what you know about database management? How does it add to your professional growth? Do you agree with the author(s)? If not, why not? What do you foresee happening in the future? Discussions outside of class are very useful and I encourage you to form study groups. While I am there to guide you through the learning process, it is one where each one of you travels on her/his own with the help of your peers.

Content

Core concepts (30%)   Applications (50%)   Emerging Tech (20%)

Levels

Introductory (50%)   Specialized (30%)   Advanced (20%)

Week 1: Introduction to Database Systems

- **Lecture Topics**: Course logistics and overview of database management.
- **Assignments**: Reflective journal entry 1 (due end of Week 1).
- **Activities**: Discussing the importance of database management in modern applications.

Week 2: Data Modeling and ER Diagrams

- **Lecture Topics**: Data modeling concepts, Entity-Relationship (ER) diagrams.
- **Assignments**: Homework 1 (ER diagram for a provided scenario, due end of Week 2).
- **Activities**: Creating ER diagrams sessions.

Week 3: Relational Databases and Normalization

- **Lecture Topics**: Introduction to relational databases, normalization (1NF, 2NF, 3NF).
- **Assignments**: Reflective journal entry 2 (due end of Week 3).
- **Activities**: Sessions on normalizing a sample database.

Week 4: SQL - Basics and Queries

- **Lecture Topics**: SQL syntax, basic queries (SELECT, INSERT, UPDATE, DELETE).
- **Assignments**: Homework 2 (basic SQL queries, due end of Week 4).
- **Activities**: Sessions on writing SQL queries.

Week 5: SQL – Advanced and Data Retrieval

- **Lecture Topics**: Advanced SQL queries, joins, subqueries, and indexing.
- **Assignments**: Group project milestone 1 (proposal and initial plan, due end of Week 5).
- **Activities**: Session on complex SQL queries.

Week 6: Database Design and Schema Creation

- **Lecture Topics**: Database schema design, best practices, and tools.
- **Assignments**: Homework 3 (database schema design, due end of Week 6).
- **Activities**: Session on creating database schemas.

Week 7: Database Design and Schema Creation, Midterm Review and Q&A

- **Lecture Topics**: Review of key concepts covered so far.
- **Assignments**: Reflective journal entry 3 (due end of Week 7).
- **Activities**: Q&A session for midterm exam preparation.

Week 8: Midterm Exam Week

- **Exam**: Midterm exam covering Weeks 1-7 material.
- **Assignments**: Midterm exam.

Week 9: NoSQL Databases

- **Lecture Topics**: Midterm exam feedback; Introduction to NoSQL databases, types, and use cases.
- **Assignments**: Homework 4 (comparison of SQL and NoSQL databases, due end of Week 9).
- **Activities**: Discussion on NoSQL technologies and applications.

Week 10: Database Management and Performance Tuning

- **Lecture Topics**: Database management, indexing, query optimization, and tuning.
- **Assignments**: Reflective journal entry 4 (due end of Week 10).
- **Activities**: Session on database performance tuning.

Week 11: Security and Backup Strategies

- **Lecture Topics**: Database security, encryption, and backup strategies.
- **Assignments**: Homework 5 (creating a database security plan, due end of Week 11).
- **Activities**: Session on implementing security and backup measures.

Week 12: Data Warehousing and Big Data

- **Lecture Topics**: Data warehousing, big data concepts, and technologies.
- **Assignments**: Group project milestone 2 (draft project, due end of Week 12).
- **Activities**: Discussion on big data and its implications in database management.

Week 13: Emerging Trends in Database Management

- **Lecture Topics**: Current trends and future directions in database technologies.
- **Assignments**: Reflective journal entry 5 (due end of Week 13).
- **Activities**: Session on emerging database technologies.

Week 14: Group Project Finalization and Practice

- **Lecture Topics**: Best practices for presenting technical projects.
- **Assignments**: Prepare final project presentation and report.
- **Activities**: Peer feedback session on project presentations.

Week 15: Final Project Team Presentations (Part 1)

- **Activities**: Group project presentations.
- **Assignments**: Submit final project report (all teams).

Week 16: Final Project Team Presentations (Part 2) and Course Wrap-Up

- **Activities**: Group project presentations.
- **Assignments**: Reflective journal entry 6 (course reflections, due end of Week 16).