Course Syllabus: Database Managements Systems
Department of Computer Science,
McCoy College of Science, Mathematics & Engineering
CMPS 4123 Section 201
Spring 2025 January 21 - May 17, 2025

Contact Information

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Class Times: MWF 11:00-11:50 am

Course Description

A study of concepts, characteristics, design, and implementation of database management systems. Relational approach to DBMS design is examined. Concepts covered include entity-relationship modeling, normalization, and efficient table design. Programming with Structured Query Language is stressed. Other approaches, such as hierarchical, network and NoSQL will also be discussed.

Student Learning Outcomes

At the conclusion of this course, students should be able to:
1.   Gather requirements for a database system.
2.   Translate the requirements into a data model design using entity-relationship tools.
3.   Transform a data model into relational database design.
4.   Understand the concepts of normalization.
5.   Write DDL statements that insert, update, or delete data from database tables.
6.   Write SQL statements that permit the acquisition and display of database-contained information.
7.   Deliver a project, where a real-life problem is taken from requirements gathering all the way to a complete database system.

Textbook & Instructional Materials

Modern Database Management [RENTAL EDITION], 13th Edition
Hoffer, Venkataraman & Topi, ©2022, Pearson
Rental+Hardcover: ISBN-13: 9780134773650 – link.
eBook subscription: ISBN-13: 9780137305940 – link.
Software: We will use draw.io for drawing entity relationship diagrams. We will use MySQL, a free, open-source relational database management system for creating databases and writing queries. You can download it free from this link. More information will follow.

Computer Science Tutoring

Tutoring is available in the Office of Tutoring and Academic Support Programs (TASP) in Moffett Library. Please see the TASP web page for schedules and availability. A tutor may assist with programs and homework for computer science classes. The tutor will not do your work. NOTE: Any tutor who is also in this class, may not assist with programs and homework. You must seek out a different tutor.

Grading

Table 1: Course Grade

Grading Criteria	Dates	Weights	Objectives Assessed
Quizzes	Weekly/biweekly	10%	1-6
Homework	Weekly/biweekly	25%	1-6
Project		25%	1-7
Midterm Exam	Mon 3/3/25	15%	1-4
Final Exam	Mon 5/5/25	25%	5-6

Table 2: Grading Criteria

Grade	Percentage
A	90 or above
B	80 to 89
C	70 to 79
D	60 to 69
F	Less than 60

Table 3 Tentative Course Schedule

Week	Starting	Topics
1	1/20	Module 1: Introduction to Databases (Ch. 1)
2	1/27	Module 2: Design I - Data Modeling and Entity-Relationships. (Ch. 2);
3	2/3	Module 2: Design I - Data Modeling and Entity-Relationships. (Ch. 2) cont.
4	2/10	Module 2: Design I cont. - Enhanced E-R Model (Ch. 3);
5	2/17	Module 3: Design II - Developing Relational models. (Ch.4);
6	2/24	Module 3: Design II - Developing Relational models. (Ch.4) cont.
7	3/3	**Midterm exam on 3/3**; Module 3: Design II cont. - Normalization (Ch. 4)
	3/10	***Spring Break***
8	3/17	Module 4: Implementation I: Introduction to SQL- DDLs and DMLs (Ch. 5);
9	3/24	Module 4: Implementation I: Introduction to SQL- DDLs and DMLs (Ch. 5) cont.
10	3/31	Module 5: Implementation II: Relational Algebra, Introduction to SQL – Queries (Ch. 5)
11	4/7	Module 5: Implementation II cont.: Relational Algebra, Introduction to SQL – Queries (Ch. 5)
12	4/14	Module 5: Implementation II cont.: Advanced SQL (Ch. 6);
13	4/21	Module 5: Implementation II cont.: Advanced SQL (Ch. 6);
14	4/28	Module 6: Implementation III: Big Data Technologies – NoSQL (Ch. 10)
15	5/5	Final exam in class on **5/5; Project Presentations begin 5/7; Project Reports due on 5/9**
16	5/12	Project presentations continue **Mon 5/12 10:30 am –12:30 pm**

Class Policies

<u>Teams</u>
Students will form teams of 2 or 3. The teams will be chosen on the first day of class and will be maintained till the end of semester. You will get to work together in your team on class quizzes and team projects.

<u>Flipped Classroom</u>
Readings from the textbook and/or other sources will be announced prior to class sessions. You will complete reading before class. We will work on many kinds of assignments in class based on this material.

<u>Assignments</u>
These fall in two categories.

<u>Quizzes:</u> We will work on quizzes that will validate the readings. The grade from the quizzes will constitute 10% of the total grade.

<u>Homework:</u> The purpose of the homework assignments is to give you individual out-of-class practice on the topics that you are learning, and to explore some ideas more deeply. The grade from the homework assignments will constitute 25% of the total Assignment grade.

<u>Exams</u>
We will have two exams – midterm and final. All students must take both exams at the scheduled times.
For planned absences: Exam may be taken early by prior arrangement.
For unplanned absences: Students need a valid university excuse (e.g., excuse from the doctor, death in the immediate family, etc.). The missed exam will be replaced with the final exam grade. **The final exam must be taken on its assigned date and time.**

<u>Team Projects</u>
Each team will select a database application, write a detailed requirement specification and create an Enterprise Data Model given the specification. The project will consist of Entity-Relationship diagrams, a data dictionary describing the entities and the attributes, and an implementation of the database that will contain valid data. The outcome of the project will be a project report as well as a team presentation in the final week. Each team will prepare a 15-to-20-minute presentation and answer related questions.

General Policies

<u>Computer Requirements</u>
Taking this class requires you to have access to a computer (with Internet access) to access online course material. Personal computer technical difficulties will not be considered a reason for extra time to submit assignments, tests, or online discussion postings. Computers are available on campus in various areas of the buildings. Computers are available on campus in various areas of the buildings. There is also a computer lab in Clark Student Center that is open 24/7, and a lab in Moffett Library that is open during library hours.
Contact your instructor immediately upon having computer trouble. If you have technical difficulties in the course, there is also a student helpdesk available to you. The university cannot work directly on student computers due to both liability and resource limitations, however they are able to help you get connected to our online services. For help, log into D2L.

<u>Desire-to-Learn (D2L)</u>
Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding

assignments, examination materials, and general course information. You can log into D2L through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Assignment Submission Policy

All assignments, unless otherwise specified, must be submitted to D2L containing the student's name, course name, the title of the assignment, the due date and the date the assignment was turned in. *No e-mail or in-person submission is accepted.*
No late assignment will be accepted. There are no exceptions to this rule.

Attendance Policy

Although student attendance is not calculated into the grade, attendance will be taken each day to track students. If a student is absent more than 2 classes without an excuse and is not performing well in class, a report will be submitted to the Dean of Students and the student may be dropped from the class. Classes will not be streamed for absent students, whether it is excused or not.

Behavior in the classroom

Students are to assist in maintaining a classroom environment that is conducive to learning. This means that the presence of electronic devices other than your laptop are not to be seen, heard, or implied, ever. Questions are encouraged and discussion is acceptable, provided it is pertinent and does not distract from the lesson.

Policy on Testing Process

The Department of Computer Science has adopted the following policy related to testing.

· All bags, purses, electronics (turned off), books, etc. will be placed in the front of the room during exams, or in an area designated by the instructor.

· Unless otherwise announced by the instructor, nothing is allowed on the desk but pen/pencil/eraser and test papers.

· A student who leaves the room during an exam must turn in the test and will not be allowed to return.

Academic Misconduct Policy & Procedures

Academic misconduct is cheating, collusion, and plagiarism: it is the act of using either published or unpublished source material of other students, persons, or generative AI (unless there are instructions that allow it) that do not follow accepted techniques of crediting. The Department of Computer Science has adopted the following policy related to academic misconduct. The policy will be applied to all submission of work for credit as determined by the instructor of the course, e.g., assignments, quizzes, and exams. (See below for link to MSU definitions.)

• 1st instance of cheating in the program: The student will be assigned a non-replaceable grade of zero for the assignment, project, or exam. If the final grade in the course does not result in a one letter grade reduction, the student will receive a one letter grade reduction in course.

• Further instances of cheating in any course within the program: The student will receive a grade of F in the course & be removed from the course.

• All instances of cheating will be reported to the Department Chair, the MCOSME Dean, the Dean of Graduate Students, if a graduate student, and the Office of Rights and Responsibilities, who may decide at their own discretion to impose a stiffer sanction based on knowledge of other instances of cheating at MSU Texas.

Note: Letting a student look at your work is collusion and is academic misconduct!

Also see MSU Student Handbook: page 72: Academic Dishonesty Policy & Procedures.

University Policies and Procedures

Change of Schedule
A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester is eligible for a100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Refund and Repayment Policy
A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. Two formulas (federal and state) exist in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Student with Disabilities
Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible. Students should present appropriate verification from Disability Support Office during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification has been provided. For additional information, contact the Disability Support Office in Clark Student Center 168 - Phone: (940) 397-4140. For more details, please go to Disability Support Services.

Policy on Concealed Handguns on Campus
Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Please note, open carry of handguns, whether licensed or not, and the carrying of all other firearms, whether open or concealed, are prohibited on campus. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at MSU Campus Carry Policy. If you have questions or concerns, please contact Interim MSU Chief of Police at steven.callarman@msutexas.edu.

Recording of Class Lectures
Permission must be requested in writing and obtained from the instructor before recording of class lectures. If permission is granted, the recording may only be used by the student making the recording. Recordings (or any class materials) may NOT be posted on any internet source without written permission of the instructor. Failure to adhere to the policy may result in removal from the course with a grade of F or other appropriate punishment.

Midterm Progress Report
In order to help students keep track of their progress toward course objectives, the instructor for this class will provide a Midterm Progress Report for all students in the course. Midterm grades will not be reported on the students' transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand at the midpoint of the semester. Students earning below a C at the midway point should a) schedule a meeting with the professor and b) seek out tutoring.

Inclement Weather
In the event of a university closure due to bad weather, please check your email and D2L announcement to find out what your assignment will be. I will not conduct an online lecture, but I will most likely expect out-of-class work.

Important Dates
Visit MSU's Registrar's website Important Dates.

Grade Appeal Process
Students who wish to appeal a grade should consult the Midwestern State University Undergraduate Catalog.

Notice
Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.