Term: Spring 2026 **Subject:** CSE 412 **Number: 412**
Course Title: Database Management

Instructor

Name: Bharatesh Chakravarthi, Ph.D.
Assistant Teaching Professor, CSE, SCAI
Office: BYENG M1-40
Email: bharatesh@asu.edu

Course Description:

This course introduces the fundamental concepts of Database Management Systems (DBMS), including data models, database architectures, and query languages. It covers relational database theory, focusing on schema design, normalization, and relational algebra. The course also addresses essential aspects of database security, integrity constraints, and concurrency control to ensure reliable and efficient data management.

Course Learning Outcomes

After this course, students will be able to:

1. Design and create efficient relational data models that fit the database application needs.
2. Write SQL (and other similar languages for accessing, querying, and manipulating data) programs to issue queries over the database to read, edit, analyze, and summarize data.
3. Build applications that access the database to retrieve relevant data and present it to end users.
4. Understand relational algebra, relational calculus, functional dependency, and query execution/optimization/compilation.

Textbooks

"Database System Concepts" Links to an external site. (seventh edition) by Abraham Silberschatz, Henry F. Korth, and S. Sudarshan (SKS).

Course Access

Your ASU courses can be accessed by both my.asu.edu and https://asu.instructure.com; bookmark both in the event that one site is down.

Computer Requirements

This is a fully online course; therefore, it requires a computer with internet access and the following technologies:

- Web browsers (Chrome , Mozilla Firefox , or Safari)
- Adobe Acrobat Reader (free)
- Adobe Flash Player (free)
- Webcam, microphone, headset/earbuds, and speaker
- Microsoft Office (Microsoft 365 is free for all currently-enrolled ASU students)

- Reliable broadband internet connection (DSL or cable) to stream videos.

Note: A smartphone, iPad, Chromebook, etc. will not be sufficient for completing your work in ASU Online courses. While you will be able to access course content with mobile devices, you must use a computer for all assignments, quizzes, and virtual labs.

Student Success

To be successful:

- check the course daily
- read announcements
- read and respond to course email messages as needed
- complete assignments by the due dates specified
- communicate regularly with your instructor and peers
- create a study and/or assignment schedule to stay on track
- access ASU Online Student Resources

Grading and Grade Categories

Your grade will be determined based on the following grading schema:

Grade	Percentage
A+	≥97%
A	≥94%
A-	≥90%
B+	≥87%
B	≥84%
B-	≥80%
C+	≥77%
C	≥70%
D	≥60%
E	<60%

Category	Course Weight
Homework / Assignments	25%
Quizzes	15%
Project	20%
Midterm Exam	20%
Final Exam	20%

Submitting Assignments

- All assignments, unless otherwise announced, MUST be submitted to the designated area of Canvas. Do not submit an assignment via email.
- Assignment due dates follow Arizona Standard time. Click the following link to access the Time Converter to ensure you account for the difference in Time Zones. Note: Arizona does not observe daylight savings time.

Course Structure and Schedule

Week	Start Date	Module (M)	Quiz (Q)	Assignment (A)	Project (P)
01	Jan 12	M1	Q1	A01	
02	Jan 19				
03	Jan 26	M2	Q2		
04	Feb 02	M3	Q3	A02	
05	Feb 09	M4	Q4		
06	Feb 16	M5	Q5	A03	
07	Feb 23	M6	Q6		Problem Statement Release
08	Mar 02	Midterm Exam			
09	Mar 09	Spring Break			
10	Mar 16	M7	Q7	A04	
11	Mar 23	M8	Q8		Milestone 01 Submission
12	Mar 30	M9	Q9		
13	Apr 06	M10	Q10		
14	Apr 13	M11	Q11	A05	
15	Apr 20	M12	Q12		
16	Apr 27	Final Exam			Final Submission

Midterm Exam and Final Exam Allowances
Any items **not** included in this list are **not** allowed during the exam or in your exam space.

- **Reminders**
    - You are to independently take your exams in a single session. Once you open your exam, your testing session begins and you will need to complete it within the allotted time. Your exam will automatically be submitted if it is **not** completed before the deadline. You will be allowed one (1) attempt to take and complete your exams.
    - You are to independently take the exam in a single session without leaving the testing space (e.g., no bathroom breaks) to ensure proctoring of the entire session.
    - You are to stay within a clear view of the webcam throughout the duration of the proctored exam session.
    - Before the exam concludes and the proctoring session ends, all scratch paper must be destroyed, and all whiteboard markings must be erased.
    - The last question in the exam will be a confirmation of you upholding ASU academic integrity.

- **Specific Allowances**
    - **Site URLs:** No
    - **Open book:** No
- **Pre-written paper notes:** yes - you may have:
    - **Handwritten notes**: Hard; five (5) sheets/pages; standard letter-size (8.5 inches x 11 inches) or A4 paper; double-sided (front and back)
    - Notes must be free-standing hard copies and not within any other items, such as, but not limited to: within a drawer, book, notebook, or binder. Have your notes physically out prior to starting the proctoring review and easily available in your workspace.
    - **Scratch paper**: Yes ○ Two (2) sheets of blank scratch paper of any size, writing utensils (e.g., pens, pencils, markers, and/or highlighters) and erasers; please have extra ones in your testing area should you run out of ink, the pencil breaks, etc.
    - Before the exam concludes and the proctoring session ends, all scratch paper must be destroyed and all whiteboard markings must be erased. The last question in the exam will be a confirmation of learners executing these ASU academic integrity actions.
- **On-Screen Calculator**: Yes - Scientific Calculator
- **Handheld calculator**: Yes. Not a separate device's calculator (e.g., mobile/cell phone) or anything with Internet access. - Scientific Calculator allowed
- **Restroom breaks**: No
- **Copy and Paste**: No
- **Hats**: No
- **Headphones**: No
- **Take Exam in a Public Area**: No

- **Mobile Phone Use**: No

Grading Procedure

- Grades reflect your performance on assignments and adherence to deadlines. Grades on assignments will be available within 72 hours of the due date in the Gradebook.
- Late or Missed Assignments - Notify the instructor **BEFORE** an assignment is due if an urgent situation arises and you are unable to submit the assignment on time.
- Follow the appropriate University policies to request an accommodation for religious practicesLinks to an external site. or to accommodate a missed assignment due to University-sanctioned activities.

Communicating With the Instructor - Ed Discussion and Email

- Please use the Ed Discussion to ask course-related questions and use ASU official email ID for any communication.

Academic Integrity

- Students in this class must adhere to ASU's academic integrity policy, which can be found at https://provost.asu.edu/academic-integrity/policyLinks to an external site.). Students are responsible for reviewing this policy and understanding each of the areas in which academic dishonesty can occur. In addition, all engineering students are expected to adhere to the ASU Academic Integrity Honor CodeLinks to an external site.. All academic integrity violations are reported to the Fulton Schools of Engineering Academic Integrity Office (AIO). The AIO maintains record of all violations and has access to academic integrity violations committed in all other ASU college/schools.

Generative AI

- **Use of Generative AI is Generally Permitted Within Guidelines** Artificial Intelligence (AI), including ChatGPT, are being used in workplaces all over the world to save time and improve outcomes by generating text, images, computer code, audio, or other media. Use of AI tools is generally welcome and even encouraged [***N.B.*:** This could say *required* in some instances] in this class with attribution aligned with disciplinary guidelines. AI tools might be employed to brainstorm, draft, edit, revise, etc. I will provide examples of how to properly cite useLinks to an external site.. Any submitted course assignment not explicitly identified as having used generative AI will be assumed to be your original work. Using AI tools to generate content without proper attribution will be considered a violation of the ASU Academic Integrity PolicyLinks to an external site., and students may be sanctioned for confirmed, non-allowable use. If at any point you have questions about what is permitted, contact the instructor to discuss *before* submitting work.

Copyright

- The contents of this course, including lectures and other instructional materials, are copyrighted materials. Students may not share outside the class, including uploading, selling or distributing course content or notes taken during the conduct of the course. Any recording of class sessions is authorized only for the use of students enrolled in this course during their enrollment in this course. Recordings and excerpts of recordings may not be distributed to others. (see ACD 304–06Links to an external site., "Commercial Note Taking Services" and ABOR Policy 5-308 F.14Links to an external site. for more information).

ASU Online Course Policies

- View the ASU Online Course Policies in the course navigation.

Accessibility Statements

- View the Accessibility section in the course navigation to review accessibility statements for common tools and resources used in ASU Online courses.
- If any other tools are used in this course, links to the accessibility statements will be listed below this sentence.

Syllabus Disclaimer

- The syllabus is a statement of intent and serves as an implicit agreement between the instructor and the student. Every effort will be made to avoid changing the course schedule, but the possibility exists that unforeseen events will make syllabus changes necessary. Remember to check your ASU email and the course site often.