

CS/DSA 4513 - Database Management Systems – Section 001-Fall 2023
1:30 PM - 2:45 PM (Mon, Wed) via Zoom Video Conferencing
(The Zoom meeting credentials for the lectures, the discussion hours, and the individual office hours are posted on the class website on Canvas)

INSTRUCTOR: Dr. Le Gruenwald; Email: ggruenwald@ou.edu; Office Hours: 4:30 PM - 5:30 PM (Mon, Wed) via Zoom.

TEACHING ASSISTANTS (TAs):

Donkada Vardhan: Email: donkada.h.vardhan-1@ou.edu

Ruyu Liu: Email: ruyu.liu-1@ou.edu

James Miller: Email: jpmokc@ou.edu

Maria Doan: Email: mariadoan247@ou.edu

TA Office Hours via Zoom are posted on the class website on Canvas.

OFFICE HOURS: Use our office hours to get help with this course. There are two types of office hours: Discussion Hours and Individual Office Hours.

Discussion Hours (2 hours/week): You can join these sessions at any time during the scheduled hours. We will discuss the homework assignments and project. You can ask general questions to clarify your doubts about the descriptions of the homework assignments and project, the concepts covered in the lectures, and the requirements of the exams. As all the students enrolled in this course can attend the same session at the same time, we do not want other students to see/hear your homework/project solutions or your other private matters. Therefore, during these sessions, please do not ask your private questions, such as the questions about your own solutions for a homework problem or the questions about the grade you got for an exam, and please do not share your own homework/project solutions

Individual Office Hours (18 hours/week): You can join these sessions when we admit you. We admit one student at a time on a first-come-first-served basis. During these hours, you can ask private questions as well as general questions. You may share your own homework/project solutions with the TAs/Instructor.

COURSE DESCRIPTION: This course concentrates on the concepts and structures necessary to design and implement a database system. It is oriented towards the general principles, their applications, and the relevant theoretical foundation. It does not devote any significant time to discussion of specific commercial packages.

REQUIRED TEXT: Abraham Silberschatz, Henry Korth, and S. Sudarshan, *Database System Concepts*, 7th Edition, McGraw-Hill, 2019.

PREREQUISITE: (CS 2413 or CS/DSA 5005) and (CS 2813 or CS/DSA 5005 or Math 2513).

COURSE WEBSITE: <https://canvas.ou.edu>

COURSE CONTENTS:

Topic

1. Introduction - Basic Concepts of DBMS
2. Entity-Relationship Model
3. Relational Model and SQL
4. File Organization, Indexing, and Hashing
5. Formal Query Languages
6. Functional Dependencies and Normalization
7. Application Development
8. Query Processing
9. Information Security and Privacy
10. Transaction Management and Database Recovery

Reading

- Ch.1 (Silberchatz)
Ch.6 (Silberchatz)
Ch. 2, 3, 4, 5, 7 (Silberchatz)
Ch. 10, 11 (Silberchatz)
Ch. 2, 27 (Silberchatz)
Ch. 8 (Silberchatz)
Ch. 7 (Siberchatz)
Ch. 15, 16 (Silberchatz)
Ch. 9 (Silberchatz), 2 (Baase)
Ch.17, 19 (Silberchatz), 8 (Baase)

ABET STUDENT OUTCOMES: This course will be evaluated for the following ABET Outcome 6: *Apply computer science theory and software development fundamentals to produce computing-based solutions.*

GRADING:

Graded Homework (Group 21% and Individual 14%)	35%
Individual Project	30%
Midterm Exam	15%
Final Exam	20%
Bonus Credit Poll Questions	10%

No make-up exams, graded homework, project, or bonus credit poll questions will be given.

GRADED HOMEWORK: Each graded homework assignment will have two parts: group graded homework and individual graded homework. For the group graded homework part, you will work with your group members to answer the given questions. Your work for this part will be evaluated by both the instructor and your group members. Read the “The Grading Policy for the Group Graded Homework” posted on the course website for details. The individual graded homework part, which consists of the follow-up questions for the group graded homework part, must be answered by you only. **If you do not submit your individual graded homework part for a graded homework assignment, you will get a zero score for the entire graded homework assignment regardless of the score you got for the group graded homework part.** For you to do well on the individual graded homework part, it is important that you work with your group members to answer the questions in the group graded homework part.

PRACTICE HOMEWORK: Practice homework will be assigned occasionally in class and will not be graded. Solutions to the practice homework will be posted on the class home page. It is the students' responsibility to do the practice homework and evaluate their solutions. Be warned that reading the solutions to the practice homework without trying to work the problems yourself first is a very poor strategy and will almost certainly result in failure on the exams.

BONUS CREDIT POLL QUESTIONS: Starting from the class of Monday, August 28, 2023, we will set up poll questions on Zoom at appropriate time points during the lectures for you to take to get BONUS CREDIT. The poll questions given in a particular class are based on the materials discussed in that class only. The total number of bonus points of all the questions given in all the remaining classes together from the Monday class of August 28, 2023 to the end of the semester is 100 points, which is 10% of the total grade. All questions will be scored equally. If you answer a question correctly, you will get the full score for that question. If you answer a question wrongly, you will get 1/3 of the full score for that question. If you do not answer a question, you will get a zero score for that question regardless of the reasons.

REQUIRED EQUIPMENT FOR EXAMS: Exams will be given online and proctored. You are required to have a working computer with WIFI connection and a webcam to take the Exams.

ACADEMIC INTEGRITY: Individual Project, Graded Individual Homework, Exams, and Bonus Credit Poll Questions are individual work; they must be done by you only – no collaboration with anyone is allowed. Graded Group Homework is group work; they must be done by you and your assigned group members only – no collaboration with other groups or anyone else is allowed. The use of generative AI tools is not allowed in all homework assignments, group project components, exams, and bonus credit poll questions unless explicitly stated otherwise in the requirements of a specific homework assignment or a specific project component. These tools include ChatGPT, Bard, Bing Chat, and other AI writing and coding assistants. Violations of these rules will be considered academic misconduct and will result in action as specified in the Academic Integrity Code at OU: <http://www.ou.edu/integrity>. Consult also the following web page for a Student's Guide to Academic Integrity at OU: <http://www.ou.edu/integrity/students>.

COPYRIGHT POLICY: Sessions of this course may be recorded or live-streamed by the individual faculty member. These recordings are the intellectual property of the individual faculty member and may not be shared or reproduced without the explicit, written consent of the faculty member. In addition, privacy rights of others such as students, guest lecturers, and providers of copyrighted material displayed in the recording may be of concern. Students may not share any course recordings with individuals not enrolled in the class, or upload them to any other online environment.

REASONABLE ACCOMMODATION POLICY: Students requiring academic accommodation should contact the Disability Resource Center for assistance at (405) 325-3852 or TDD: (405) 325-4173. For more information please see the Disability Resource Center website <http://www.ou.edu/drc/home.html>. Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

RELIGIOUS OBSERVANCE: It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays without penalty.

ADJUSTMENTS FOR PREGNANCY/CHILDBIRTH RELATED ISSUES: Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact me as soon as possible to discuss. Generally, modifications will be made where medically necessary and similar in scope to accommodations based on temporary disability. Please see www.ou.edu/content/eoo/faqs/pregnancy-faqs.html for commonly asked questions.

TITLE IX RESOURCES: For any concerns regarding gender-based discrimination, sexual harassment, sexual misconduct, stalking, or intimate partner violence, the University offers a variety of resources, including advocates on-call 24.7, counseling services, mutual no contact orders, scheduling adjustments and disciplinary sanctions against the perpetrator. Please contact the Sexual Misconduct Office 405-325-2215 (8-5, M-F) or OU Advocates 405-615-0013 (24.7) to learn more or to report an incident.