

**CS 5513 - ADVANCED DATABASE MANAGEMENT  
SPRING 2026**

**SECTION 1: 3:00 PM - 4:15 PM (Tue, Thu) in Room Carson Engineering Center (CEC) 441**

**Instructor:**

Dr. Le Gruenwald  
Office and Email: 233 DEH, [ggruenwald@ou.edu](mailto:ggruenwald@ou.edu)  
Office Hours: 4:30 PM-5:30 PM (Tue, Thu) via Zoom  
(The Zoom meeting credentials for the office hours are posted on the course website)

**Teaching Assistant:**

Jamshed Karimnazarov  
Office and Email: 115 DEH (CS Computer Science Lab), [jamshed.k@ou.edu](mailto:jamshed.k@ou.edu)  
Office Hours: via Zoom and in 115 DEH  
(The office hours and the Zoom meeting credentials are on the course website)

**Textbooks:**

Reading Lists on Current Topics in Databases (provided by the instructor)

**Prerequisite:**

CS 4513 (Database Management) or Equivalent

**Software:**

Oracle, MongoDB and other open-source database systems

**Course Website:**

<http://canvas.ou.edu>

**Course Coverage:**

This course will examine current applied and theoretical subjects in database systems. The topics to be covered in this course include:

- Database Recovery and Concurrency Control
- Distributed Databases
- Object-Oriented and Object-Relational Databases
- Web Databases
- Cloud Computing, Big Data Management, and NoSQL Systems
- Data Warehousing
- AI-Enabled Databases
- Quantum Databases

**Learning Outcomes:**

Upon successful completion of this course, students will be able to:

- Analyze, design, and implement advanced database system solutions, demonstrating an understanding of architectural and algorithmic trade-offs.
- Evaluate modern and emerging database paradigms, including intelligent and non-classical approaches, with respect to their assumptions, capabilities, and limitations.
- Design, execute, and communicate a comprehensive database project, integrating research literature analysis, system design and implementation,

experimental evaluation, teamwork, and professional-quality written reports and oral presentations

**Grading:**

Group Project and Presentation	50%
Individual Homework	50%
Bonus Credit In-Class Poll Questions	5%

**BONUS CREDIT IN-CLASS POLL QUESTIONS:** These questions are designed to reinforce your understanding of the materials discussed in class and encourage active participation. We will set up poll questions 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 and the class prior to that class. The total number of bonus points of all the questions is 50 points, which is 5% of the total grade. All questions will be scored equally. If you answer a question correctly, you will get full points for that question. If you answer a question wrongly, you will get 1/3 of the full points for that question. If you do not answer a question, you will get zero points for that question regardless of the reasons. The exact number of poll questions will depend on the pace of the course and may vary from lecture to lecture.

**ACADEMIC INTEGRITY:** Individual Homework and Bonus Credit Poll Questions are individual work; they must be done by you only – no collaboration with anyone is allowed. Group Project and Presentation 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, 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, Gemini, Copilot, 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.

**UNIVERSITY POLICIES**

**Mental Health Support Services**

Support is available for any student experiencing mental health issues that are impacting their academic success. Students can either be seen at the University Counseling Center (UCC) located on the second floor of Goddard Health Center or receive 24/7/365 crisis support from a licensed mental health provider through [TELUS Health](#). To schedule an appointment or receive more information about mental health resources at

OU please call the UCC at 405-325-2911 or visit [University Counseling Center](#). The UCC is located at 620 Elm Ave., Room 201, Norman, OK 73019.

### **Title IX Resources and Reporting Requirement**

The University of Oklahoma faculty are committed to creating a safe learning environment for all members of our community, free from gender and sex-based discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking, in accordance with Title IX. There are resources available to those impacted, including: speaking with someone confidentially about your options, medical attention, counseling, reporting, academic support, and safety plans. If you have (or someone you know has) experienced any form of sex or gender-based discrimination or violence and wish to speak with someone confidentially, please contact [OU Advocates](#) (available 24/7 at 405-615-0013) or [University Counseling Center](#) (M-F 8 a.m. to 5 p.m. at 405-325-2911)

Because the University of Oklahoma is committed to the safety of you and other students, and because of our Title IX obligations, I, as well as other faculty, Graduate Assistants, and Teaching Assistants, are mandatory reporters. This means that we are obligated to report gender-based violence that has been disclosed to us to the Institutional Equity Office. This means that we are obligated to report gender-based violence that has been disclosed to us to the Institutional Equity Office. This includes disclosures that occur in: class discussion, writing assignments, discussion boards, emails and during Student/Office Hours. You may also choose to report directly to the Institutional Equity Office. After a report is filed, the Title IX Coordinator will reach out to provide resources, support, and information and the reported information will remain private. For more information regarding the University's Title IX Grievance procedures, reporting, or support measures, please visit [Institutional Equity Office](#) at 405-325-3546.

### **Reasonable Accommodation Policy**

The University of Oklahoma (OU) is committed to the goal of achieving equal educational opportunity and full educational participation for students with disabilities. If you have already established reasonable accommodations with the Accessibility and Disability Resource Center (ADRC), please [submit your semester accommodation request through the ADRC](#) as soon as possible and contact me privately, so that we have adequate time to arrange your approved academic accommodations.

If you have not yet established services through ADRC, but have a documented disability and require accommodations, please complete [ADRC's pre-registration form](#) to begin the registration process. ADRC facilitates the interactive process that establishes reasonable accommodations for students at OU. For more information on ADRC registration procedures, please review their [Register with the ADRC](#) web page. You may also contact them at (405)325-3852 or [adrc@ou.edu](mailto:adrc@ou.edu), or visit [www.ou.edu/adrc](http://www.ou.edu/adrc) for more information.

Note: disabilities may include, but are not limited to, mental health, chronic health, physical, vision, hearing, learning and attention disabilities, pregnancy-related. ADRC can also support students experiencing temporary medical conditions.

### **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.

[\[See Faculty Handbook 3.15.2\]](#)

### **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 the Accessibility and Disability Resource Center at 405/325-3852 and/or the Institutional Equity Office at 405/325-3546 as soon as possible. Also, see the Institutional Equity Office [FAQ on Pregnant and Parenting Students' Rights](#) for answers to commonly asked questions.

### **Final Exam Preparation Period**

Pre-finals week will be defined as the seven calendar days before the first day of finals. Faculty may cover new course material throughout this week. For specific provisions of the policy please refer to OU's [Final Exam Preparation Period policy](#).

### **Emergency Protocol**

During an emergency, there are official university [procedures](#) that will maximize your safety.

**Severe Weather:** If you receive an OU Alert to seek refuge or hear a tornado siren that signals severe weather.

1. Look for severe weather refuge location maps located inside most OU buildings near the entrances.
2. Seek refuge inside a building. Do not leave one building to seek shelter in another building that you deem safer. If outside, get into the nearest building.
3. Go to the building's severe weather refuge location. If you do not know where that is, go to the lowest level possible and seek refuge in an innermost room. Avoid outside doors and windows.
4. Get in, Get Down, Cover Up
5. Wait for official notice to resume normal activities.

Additional [Weather Safety Information](#) is available through the Department of Campus Safety.

### **The University of Oklahoma Active Threat Guidance**

The University of Oklahoma embraces a Run, Hide, Fight strategy for active threats on campus. This strategy is well known, widely accepted, and proven to save lives. To receive emergency campus alerts, be sure to update your contact information and preferences in the account settings section at [one.ou.edu](http://one.ou.edu).

**RUN:** Running away from the threat is usually the best option. If it is safe to run, run as far away from the threat as possible. Call 911 when you are in a safe location and let them know from which OU campus you're calling from and location of active threat.

**HIDE:** If running is not practical, the next best option is to hide. Lock and barricade all doors; turn off all lights; turn down your phone's volume; search for improvised weapons; hide behind solid objects and walls; and hide yourself completely and stay quiet. Remain in place until law enforcement arrives. Be patient and remain hidden.

**FIGHT:** If you are unable to run or hide, the last best option is to fight. Have one or more improvised weapons with you and be prepared to attack. Attack them when they are least expecting it and hit them where it hurts most: the face (specifically eyes, nose, and ears), the throat, the diaphragm (solar plexus), and the groin.

*Please save OUPD's contact information in your phone.*

**NORMAN** campus: *For non-emergencies call (405) 325-1717. For emergencies call (405) 325-1911 or dial 911.*

**TULSA** campus: *For non-emergencies call (918) 660-3900. For emergencies call (918) 660-3333 or dial 911.*

### **Fire Alarm/General Emergency**

If you receive an OU Alert that there is danger inside or near the building, or the fire alarm inside the building activates:

1. *LEAVE* the building. Do not use the elevators.
2. *KNOW* at least two building exits
3. *ASSIST* those that may need help
4. *PROCEED* to the emergency assembly area
5. *ONCE safely outside, NOTIFY first responders of anyone that may still be inside building due to mobility issues.*
6. *WAIT* for official notice before attempting to re-enter the building.

[\*OU Fire Safety on Campus\*](#)