

CS 5593 DATA MINING
FALL 2024
SECTION 001: 3:00 PM - 4:15 PM (Tuesday, Thursday)
Room M0204 Sarkeys Energy Center (SEC)

Instructor:

Dr. Le Gruenwald; Email: ggruenwald@ou.edu; Office Hours: 4:30 PM-5:30 PM Tuesday, Thursday via Zoom (the Zoom credentials for office hours are posted on the class website on Canvas)

Teaching Assistant:

Yogesh Bollampalli; Email: yogesh.bollampalli-1@ou.edu; Office Hours via Zoom are posted on the class website on Canvas

Required Textbook:

Pang-Ning Tan, Michael Steinbach, Anuj Karpatne, and Vipin Kumar, *Introduction to Data Mining*, 2nd Edition, Pearson Education, Inc., 2019

Reference Materials:

1. CRAN, *An Introduction to R*, <https://cran.r-project.org/doc/manuals/r-release/R-intro.html>
2. Ian H. Witten, Eibe Frank, and Mark A. Hall, "Data Mining – Practical Machine Learning Tools and Techniques," 3rd Edition, Chapters 10-17, Morgan Kaufmann, 2011 (*available online on OU Library Website*)
3. Jiawei Han, Jian Pei, and Hanghang Tong, *Data Mining: Concepts and Techniques*, 4th Edition, Morgan Kaufmann, 2022
4. Jure Leskovec, Anand Rajaraman and Jeffrey D. Ullmann, *Mining of Massive Datasets*, 2014
5. Additional materials provided by the instructor.

Prerequisite:

Permission of instructor

Course Website:

<https://canvas.ou.edu>

Course Coverage:

This course covers the process, concepts and techniques in data mining, including advanced techniques that deal with big data. It provides students with the necessary background for the application of data mining to real world problems. The topics to be covered include:

Topic

1. Introduction to Data Mining
2. Data
3. Data Mining Tools: WEKA and R
4. Exploring Data
5. Classification: Concepts, Decision Trees and Model Evaluation
6. Association Analysis
7. Cluster Analysis
8. Anomaly Detection
9. Classification: Alternative Techniques
10. Association Analysis: Advanced Concepts
11. Big Data Mining

Reading

Ch. 1 (Text)
Ch. 2 (Text)
Ref. 1, 2
Ch. 3 (1st Edition,
on the class website)
Ch. 3 (Text)
Ch. 5 (Text)
Ch. 7 (Text)
Ch. 9 (Text)
Ch. 4 (Text)
Ch. 6 (Text)
Ch. 8 (Text), Ref. 4

Grading:

Group Project (Proposal, Progress Report, Final Report, and Presentation)	50%
Homework	50%
Bonus Credit In-Class Participation	10%

BONUS CREDIT IN-CLASS 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 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.

ACADEMIC INTEGRITY: Homework is individual work; it must be done by you only – no collaboration with anyone is allowed. Group Project is group work; it 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 and group project components 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>.

UNIVERSITY POLICIES:**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. [\[See Faculty Handbook 3.15.2\]](#)

Reasonable Accommodation Policy

The Accessibility and Disability Resource Center is committed to supporting students with disabilities to ensure that they are able to enjoy equal access to all components of their education. This includes your academics, housing, and community events. If you are experiencing a disability, a mental/medical health condition that has a significant impact on one or more life functions, you can receive accommodations to provide equal access. Possible disabilities include, but are not limited to, learning disabilities, AD(H)D, mental health, and chronic health. Additionally, we support students with temporary medical conditions (broken wrist, shoulder surgery, etc.) and pregnancy. To discuss potential accommodations, please contact the ADRC at 730 College Avenue, (ph.) 405.325.3852, or adrc@ou.edu.

Title IX Resources and Reporting Requirement

Anyone who has been impacted by gender-based violence, including dating violence, domestic violence, stalking, harassment, and sexual assault, deserves access to resources so that they are supported personally and academically. The University of Oklahoma is committed to offering resources to those impacted, including: speaking with someone confidentially about your options, medical attention, counseling, reporting, academic support, and safety plans. If you would like to speak with someone confidentially, please contact [OU Advocates](#) (available 24/7 at 405-615-0013) or another confidential resource (see [“Can I make an anonymous report?”](#)). You may also choose to report gender-based violence and discrimination through other means, including by contacting the [Institutional Equity Office](#) (ieo@ou.edu, 405-325-3546) or police (911). Because the University of Oklahoma is committed to the safety of you and other students, 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 includes disclosures that occur in: class discussion, writing assignments, discussion boards, emails and during Student/Office Hours. For more information, please visit the [Institutional Equity Office](#).

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

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.

Armed Subject/Campus Intruder

If you receive an OU Alert to shelter-in-place due to an active shooter or armed intruder situation or you hear what you perceive to be gunshots:

1. *Avoid:* If you believe you can get out of the area WITHOUT encountering the armed individual, move quickly towards the nearest building exit, move away from the building, and call 911.
2. *Deny:* If you cannot flee, move to an area that can be locked or barricaded, turn off lights, silence devices, spread out, and formulate a plan of attack if the shooter enters the room.
3. *Defend:* As a last resort fight to defend yourself.

For more information, visit [OU's Active Shooter page](#).

[Shots Fired on Campus Procedure – Video](#)

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](#)

Mental Health Support Services

If you are experiencing any mental health issues that are impacting your academic performance, counseling is available at the University Counseling Center (UCC). The Center is located on the second floor of the Goddard Health Center, at 620 Elm Rm. 201, Norman, OK 73019. To schedule an appointment call (405) 325-2911. For more information, please visit [University Counseling Center](#).