

**CS 5593 – ONLINE SECTION 995 - DATA MINING
FALL 2017**

INSTRUCTOR: Dr. Le Gruenwald; Email: ggruenwald@ou.edu; Office Hours: 3:00 PM-4:30 PM CST (Mon, Wed) via Skype (Skype id: legruenwald4556).

TEACHING ASSISTANT (TA): Dongdong Wang; Email: ddwang@ou.edu; Office Hours via Skype will be announced later.

Textbook:

Pang-Ning Tang, Michael Steinbach and Vipin Kumar, *Introduction to Data Mining*, Addison-Wesley, 2006

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 and Micheline Kamber. *Data Mining: Concepts and Techniques, Third Edition*, Morgan Kaufman Publishers, 2012
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

Software:

WEKA and R

Learning Management System: www.janux.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	Reading
1. Introduction to Data Mining	Ch. 1 (Text)
2. Data	Ch. 2 (Text)
3. Data Mining Tools: WEKA and R	References 1, 2
4. Exploring Data	Ch. 3 (Text)
5. Classification: Concepts, Decision Trees and Model Evaluation	Ch. 4 (Text)
6. Association Analysis	Ch. 6 (Text)
7. Cluster Analysis	Ch. 8 (Text)
8. Anomaly Detection	Ch. 10 (Text)
9. Classification: Alternative Techniques	Ch. 5 (Text)
10. Association Analysis: Advanced Concepts	Ch. 7 (Text)
11. Big Data Mining	Ch. 9 (Text)

Grading:

Project (Proposal, Progress Report, Final Report, Presentation and Demo)	45%
Final Exam	25%
Homework	30%

No make-up exam or homework or class project will be given.

HOMEWORK: Homework will be assigned and due at NOON on the specified dates on the Janux platform. Late homework submissions will be accepted until 11:59 PM on the date following the due date with 5% penalty. Any late homework submission after this time will not be graded. All homework answers must be typed. Some homework files will need to be submitted in the PDF format, and some will be submitted as R or other file types. The specific submission instructions for each individual homework assignment will be provided along with its description.

PROJECT: The project components (proposal, progress report, YouTube presentation and demo, and final report package) are due at NOON on the Janux platform on the dates specified in the “PROJECT REQUIREMENTS” document. **NO LATE PROJECT SUBMISSION WILL BE ACCEPTED.**

FINAL EXAM: The final exam will be open on the Janux platform for a 10-hour window starting at 1:30 PM on Wednesday December 13, 2017 . The final exam will be taken through the Janux platform. The proctoring service B Virtual will monitor your exam-taking activity via a webcam on your computer (required) in addition to monitoring your online and offline activity. Students must engage with B Virtual *prior* to taking the exam. Be sure to allot sufficient time to organize everything. Once the exam is activated on Janux, students will have a limited amount of time to complete it. The exact time limit for final exam will be announced later. Please note that the exam period **INCLUDES** the scanning and uploading of handwritten answers, so allow sufficient time to upload these documents to the Janux platform. The system will record the time when a student retrieves the exam and the time when the exam is finally submitted, but the platform offers no timekeeping function for the student. As such, it is incumbent upon you to monitor your own examination pace and ensure that submission is on time.

SOFTWARE SYSTEM: For some homework assignments, you will be using the R and WEKA systems. The Lecture Topic 3 videos present the instructions of how to download, install and use these systems.

MATERIALS: Please make sure that you have the following hardware, software, and web accounts:

- A Webcam and a B Virtual proctoring account so that your final exam can be proctored;
- A Skype account to communicate with me and the TA during our office hours;
- A PDF reader (the latest version) to read our PDF files;
- Access to a scanner or scanning app to PDF to submit the hand-written answer portions of the graded homework and exams. The scanning apps that have been vetted by the OU Center for Teaching Excellence include:
 - Evernote Scannable (only on [iOS](#))
 - Tiny Scan ([Android](#) & [iOS](#))
 - Genius Scan ([Android](#), [iOS](#) & [Windows Phone](#))

There are tutorials for the scanning apps available on Lynda.com which you can access for free. Just sign in with your OU 4x4 and password (<https://www.lynda.com/Android->

[tutorials/Using-PDF-scanner-mobile-apps/183383/367929-4.html](https://www.ou.edu/tutorials/Using-PDF-scanner-mobile-apps/183383/367929-4.html)). Only a PDF file can be uploaded (i.e., an uploaded photo of a homework assignment will NOT be accepted).

ATTENDANCE: Since this is a fully online class, you are expected to view all lectures, complete all readings and do the homework assignments and the class project throughout the course.

ACADEMIC INTEGRITY: All work submitted for grading (homework, class project, and final exam) must be yours and yours alone. Plagiarism will result in action as specified in the Academic Integrity Code at OU: http://integrity.ou.edu/files/Academic_Misconduct_Code.pdf. Consult also the following web page for a Student's Guide to Academic Integrity at OU: http://integrity.ou.edu/students_guide.html.

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.

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.

TITLE IX RESOURCES AND REPORTING REQUIREMENT: 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. To learn more or to report an incident, please contact the Sexual Misconduct Office at 405-325-2215 (8 to 5, M-F) or OU Advocates at 405-615-0013 (24/7). Also, please be advised that a professor/GA/TA is required to report instances of sexual harassment, sexual assault, or discrimination to the Sexual Misconduct Office. For more information, please see <http://www.ou.edu/eoo>.

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 Disability Resource Center at 405-325-3852 as soon as possible. Please see <http://www.ou.edu/eoo/faqs/pregnancy-faqs.html> for answers to commonly asked questions.

TECHNICAL SUPPORT: The instructor and teaching assistant will not be able to help with issues related to the Janux platform. Needs for platform assistance should be addressed to the NextThought Help center at janux@ou.edu. For OU IT support, please phone (405) 325-HELP.

TENTATIVE SCHEDULE

Date	Topic	Assigned	Due
Mon Aug 21	1		
Wed Aug 23	1		
Mon Aug 28	2	Project Requirements (including Project Schedule and Project Proposal Requirements)	
Wed Aug 30	2		
Mon Sept 4	Labor Day		
Wed Sept 6	3		
Mon Sept 11	3		
Wed Sept 13	4		
Mon Sept 18	4	Homework 1 (Topics 1, 2, 3)	Project Proposal
Wed Sept 20	5	Project Progress Report Requirements	
Mon Sept 25	5		
Wed Sept 27	5		Homework 1
Mon Oct 2	5	Homework 2 (Topics 4, 5)	
Wed Oct 4	6		
Mon Oct 9	6		
Wed Oct 11	6		Homework 2
Mon Oct 16	6		
Wed Oct 18	7	Homework 3 (Topic 6)	Project Progress Report
Mon Oct 23	7	Project Presentation and Demo and Final Report Package Requirements	
Wed Oct 25	7		
Mon Oct 30	7		Homework 3
Wed Nov 1	8	Homework 4 (Topic 7)	
Mon Nov 6	8		
Wed Nov 8	8		
Mon Nov 13	8		Homework 4
Wed Nov 15	9		
Mon Nov 20	9		
Wed Nov 22	Thanksgiving		
Mon Nov 27	10		
Wed Nov 29	11		Project YouTube Presentation and Demo
Mon Dec 4	11		Class Project Final Report Package
Wed Dec 6	11		
Wed Dec 13		Final Exam (proctored, comprehensive)	Final Exam

Students are responsible for any changes/additions to this syllabus announced over the course of the semester.