Computer Science 5813

Formal Languages

Fall 2024 Syllabus

1 General Information

Class Time: 1:30 - 2:45 PM T/R
Class Location: Sarkeys Energy Ctr P0207

Required Materials:

1. *An Introduction to Formal Languages and Automata*, Peter Linz & Susan H Rodger, 7th edition, Jones & Bartlett Learning, 2023

   https://www.jblearning.com/catalog/productdetails/9781284231601

Instructor and Office Hours: Nic Grounds

Office	Hours	E-mail
?	by appointment	nicgrounds@ou.edu

1.1 Important Dates

First Day of Class	Tues, Aug 20
Final Exam Prep Week	Dec 2 - 6
Final Exam	Tues, Dec 10, 1:30 PM - 3:30 PM
No Class	Sep 2
Thanksgiving Vacation	Nov 27 - Dec 1
Final Day No-Charge Drop	Aug 30
Final Day W-Record Drop	Dec 6
Final Day for Credit → Audit	Oct 25

2 Course Policies

2.1 Class Attendance

Class attendance is important because we will discuss and clarify concepts and examples that are may not be in the textbook. You are responsible for everything that is announced in class, independent of whether you choose to attend or not. In class students may be required to work in small groups. Additionally, graded quizzes or group work may be given in class. Students who do not attend will not get credit for quizzes or group assignments.

If circumstances arise that prevent attendance students should contact the instructor as soon as possible before class meets to arrange, if possible, an alternative to any in-class assignment.

2.2 Class Home Page

This class will use Canvas software for our home page. The URL for the home page is `http://canvas.ou.edu`. Login with your 4+4 using your standard OU password. If you have difficulty logging in, call 325-HELP. This software provides a number of useful features, including a list of assignments and announcements, an electronic mailing list, and grade book. The Canvas course site will be used for all updates. You should check the site regularly.

2.3 Class Email Alias

Urgent announcements will be sent through email. It is your responsibility to:

- Regular read your university supplied e-mail or have it forwarded to a location where you do regularly read e-mail. I'll send out a test message during the first week of class. If you do not receive this message, it is your responsibility to get the problem resolved.
- Have your email program set up so that replying to your email will work correctly. You can send email to yourself and reply to yourself to test this. If you need assistance in accomplishing any of these tasks, contact 325-HELP. You are responsible for reading emails within 24 hours.

2.4 Final Examination

The final examination is on Tuesday, December 10th in our regular classroom, Sarkeys Energy Center P0207 from 1:30 PM to 3:30 PM. Per University policy the final examination is comprehensive.

2.5 Academic Misconduct

All work submitted for an individual grade, such as quizzes, should be the work of that single individual: not their friends or tutor.

- Do not show another student a copy of your homework or projects before the submission deadline. The penalties for permitting your work to be copied are the same as the penalties for copying someone else's work.
- If you choose to do your work on your computer, make sure that your computer account is properly protected. Use a good password, and do not give your friends access to your account or your computer system. Do not leave printouts, or thumb drives around a laboratory where others might access them.
- Upon the first documented occurrence of collaborative work, I will report the academic misconduct to the Campus Judicial Coordinator. The procedure to be followed is documented in the University of Oklahoma Academic Misconduct Code (`http://studentconduct.ou.edu/images/stories/student\_codebook20092010.pdf`). In the unlikely event that I elect to admonish the student, the appeals process is described in `http://www.ou.edu/provost/integrity-rights/`.

2.6 Accommodation of Disabilities

The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course are requested to speak with the professor as early in the semester as possible. Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located at 730 College Ave, phone 405/325-3852 or TDD only 405/325-4173.

2.7 Adjustments for Pregnancy/Childbirth Related Issues

Should you need modifications or adjustments to your course requirements because of documentedx pregnancy-related or childbirth-related issues, please contact me as soon as possible to discuss. Generally, modifications will be made where medically necessary aned similar in scope to accommodations based on temporary disability. Please see `http://www.ou.edu/content/eoo/pregnancyfaqs.html` for commonly asked questions.

2.8 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 Assault Response Team 405-615-0013 (24.7) to learn more or to report an incident.

2.9 Religious Holidays

It is the policy of the University to excuse absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays.

2.10 Use of Evaluations

The College of Engineering utilizes student ratings as one of the bases for evaluating the teaching effectiveness of each of its faculty members. The results of these forms are important data used in the process of awarding tenure, making promotions, and giving salary increases. In addition, the faculty uses these forms to improve their own teaching effectiveness. The original request for the use of these forms came from students, and it is students who eventually benefit most from their use. Please take this task seriously and respond as honestly and precisely as possible, both to the machine-scored items and to the open-ended questions.

3 Emergency Protocol

During an emergency, there are official university procedures that will maximize your safety.
`https://www.ou.edu/campussafety/emergency-management-department/procedures`

3.1 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.

Link to Severe Weather Preparedness - Video: `https://vimeo.com/237922159`

3.2 Fire Alarm/General Emergency

If you receive an OU Alert that there is a 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.

Link to OU Fire Safety on Campus - `https://vimeo.com/125093634`

3.3 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. GET OUT: 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. HIDE OUT: 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. TAKE OUT: As a last resort fight to defend yourself.

Link to OU Fire Safety on Campus - `hhttps://www.ou.edu/campussafety/emergency-management-department/procedures/active-shooter`

4 Course Coverage and Procedures

4.1 Teamwork Issues

The workloads of teams are expected to be evenly distributed among the members. One will risk losing all or part of the project grade if they do not make a fair contribution.

4.2 Material Covered

Many or all chapters' content in the *Engeinering Software Products* textbook will be covered. Additionally, some online material may be provided as supplementary learning resources.

4.3 Quizzes & Individual Assignments

To balance the team-based Project activity of the course, and lay the theoretical groundwork for the project assignment there will be individual assignments and regular quizzes given in class during the first part of the course, taken from the lectures.

4.4 Project

The major activity in the latter part of the course is participation in one or more group projects to develop a software product.

4.5 Backup Copies of Projects

It is the students' responsibility to backup their files appropriately. No extensions to deadlines will be given as a result of lost files, unless there is a massive, network wide problem that affects the entire class. Do not rely on anyone else to backup your important files. Buy a jump drive (or other media) and make backing up your work a routine part of computer usage. Always back up your files at the end of the laboratory session. It is particularly important to save a backup copy of any project that is submitted. This backup version should not be opened or edited after submission in case something goes wrong with the submission system.

5 Evaluation

5.1 Canvas Grade Summary

Canvas has a grade book that is used to store the raw data that is used to calculate your course grade. It is the responsibility of each student in this class to check their grades on Canvas after each project or homework is returned. If an error is found, bring the grading document to me, and I will correct it.

5.2 Grading

There are 4 components to the course grade. They are weighted as follows.

Component	*Percent*
Quizzes/Individual Assignments	75
Midterm	10
Final Exam	15

5.3 Course Schedule

The following is a **tentative** schedule for covered material and due dates for project deliverables. The final determination of due dates will be dates announced in class and posted to Canvas, not this tentative schedule.

Week	**Dates**	**Description**	**Notes**
1	Aug 20, 22	Intro to Theory of Computation, ch 1	
2	Aug 27, 29	Finite Automata, ch 2	
3	Sep 3, 5	Regular Languages and Grammers, ch 3	
4	Sep 10, 12	Properties of Regular Languages, ch 4	
5	Sep 17, 19	Context-Free Languages, ch 5	
6	Sep 24, 26	CFL Simplification and Normal Form, ch 6	
7	Oct 1, 3	Pushdown Automata, ch 7	
8	Oct 8, 10	Properties of CFLs, ch 8	
9	Oct 15, 17	Review, Catch-up	
10	Oct 22, 23	Midterm	
11	Oct 29, 31	Turing Machines, ch 9	
12	Nov 5, 7	Other Models of Turing Machines, ch 10	
13	Nov 12, 14	Formal Language Hierarchy, ch 11	
14	Nov 19, 21	Computational Complexity, ch 14	
15	Nov 26, 28	Compilers and Parsing, ch 15	No Class Nov 28
16	Dec 3, 5	LL/LR Parsing, ch 16-17	
-	Dec 10	Final Examination	