CSci 311: Models of Computation
CSci 500: Fundamentals Concepts in Computing
Fall 2024

Instructor:	Timothy Holston (tlholsto@olemiss.edu), Weir 216
Phone:	(662) 205-6231 (Google Voice Number)
Office Hours:	Monday and Wednesday 9AM – 11AM and 1PM – 3:00PM
	(*Other times are available see Appointment Calendar*)
Class Time:	T TH 2:30 p.m. – 3:45 p.m. **Location:** Weir 235
Required text:	An Introduction to Formal Languages and Automata, 6th edition. By Peter Linz, published by Jones and Bartlett.
	ISBN: 978-1-284-07724-7 (bookstore discount ISBN),
	ISBN-13: 978-1284077247
	ISBN-10: 1284077241
Supplemental Material:	**JFLAP, from JFLAP.org**

Catalog Description: Introduction to the theoretical foundations of computer science, including automata and formal languages.
Prerequisite: CIS/CSci 112 (C-), 113(B-), 24 Earned Hours. Co-req.: Math 301

Course Outcomes: At the end of this course, students will be able to:
1. Interpret and design automata that describe simple languages
2. Know about regular expressions and their use in programming languages
3. Understand grammars, parsing and ambiguity
4. Distinguish between regular and non-regular languages
5. Understand the Chomsky hierarchy
6. Understand the limits of computation

Topics Coverage:
1. Languages, grammars, automata
2. Deterministic Finite Accepters (DFA)
3. Nondeterministic Finite Accepters (NFA)
4. Equivalency of DFA and NFA
5. Regular expressions
6. Regular grammars
7. Closure properties of regular languages
8. Nonregular languages
9. Context-Free Grammars (CFG)
10. Parsing and ambiguity
11. CFG's and programming
12. Nondeterministic pushdown automata
13. Pushdown automata and Context-Free Languages (CFL)
14. Grammars for deterministic CFLs

15. Closure and decidability properties for CFLs
16. Turing machines
17. Recursive and recursively enumerable languages
18. Context-sensitive grammars and languages
19. The Chomsky hierarchy
20. Halting problem and undecidable problems

Grading:

Attendance Quizzes	– 20%
Homeworks (3)	– 30%
Quizzes (3)	– 20%
Exams (3)	– 30%

Important Dates (*Bolded dates could possibly change***)**

September 5th	**Quiz #1**
September 12th	**Homework 1 Due**
September 16th	Mandatory drop date for non-attendance
September 24th	**Exam 1**
October 8th	**Quiz #2**
October 14th	Last day to withdraw from classes.
October 15th	**Homework 2 Due**
October 24th	**Exam 2**
November 7th	**Quiz #3**
November 14th	**Homework 3 Due**
November 21st	**Exam 3**
December 5th	Last Day of Class
December 10th	**Final Exam @ 4PM (**optional**)**

Course Information:
- Attendance Quizzes are pop quizzes and cannot be made up. They will generally happen at the beginning of a class period. If a student fails to take an attendance quiz, a grade of zero(0) will be entered into the gradebook. At the end of the semester, one (1) attendance quiz will be dropped.
- The final exam is comprehensive and optional. The final will be given during the normal final exam period and can be used to replace the grade of any ONE of the regular exams.

Late Assignments: No student work will be accepted late if not approved by instructor prior to the due date. (*There is an exception when the student has a medical emergency which doesn't allow for advanced notice. CoVID-19 may not itself constitute a medical emergency.)*

Attendance Policy: This course is a traditional face-to-face course and students are expected to attend each session. If a student is unable to attend a class session, they

should email the instructor *before* the scheduled session, if possible, to inform the instructor of their absence. For *enrollment verification*, instructor will take attendance each day the class meets until all students are verified or until the mandatory drop date outlined in the academic calendar for the semester the course is scheduled. For any reason, if a student fails to take an attendance quiz, they will receive a zero for that quiz score. One (1) attendance quiz will be dropped at the end of the semester.

Academic Integrity: The University of Mississippi seeks to support and sustain a safe and scholarly community of learning dedicated to nurturing excellence inside and outside the classroom. The University expects all students to familiarize themselves with the values and standards reflected in its policies and to honor those values and standards in their conduct as individuals and groups. These policies are outlined in the M Book. The University Policy Directory gives a complete listing of the policies.

As a student in Computer Science, you are expected to conduct yourself in a professional and ethical manner according to the policies, procedures, and expectations of the Department of Computer and Information Science, School of Engineering and College of Liberal Arts, University of Mississippi, and the discipline of computer science. **This course will strictly follow the University's academic discipline policies and procedures. Academic misconduct may result in penalties ranging from a grade reduction on an assignment to expulsion from the course, depending on the severity of the violation.**

Use of Artificial Intelligence: The use of any Ai is prohibited for all coursework that will generate a grade.

Disability Access and Inclusion: The University of Mississippi is committed to the creation of inclusive learning environments for all students. If there are aspects of the instruction or design of this course that result in barriers to your full inclusion and participation, or to accurate assessment of your achievement, please contact the course instructor as soon as possible. Barriers may include, but are not necessarily limited to, timed exams and in-class assignments, difficulty with the acquisition of lecture content, inaccessible web content, and the use of non-captioned or non-transcribed video and audio files. If you are registered with SDS, you must log in to your Rebel Access portal at https://sds.olemiss.edu/rebel-access-portal to request approved accommodations. If you are NOT registered with SDS, you must complete the process to become registered. To begin that process, please visit our website at https://sds.olemiss.edu/apply-for-services. SDS will:
1. Complete a comprehensive review to determine your eligibility for accommodations,
2. If approved, disseminate to your instructors a Faculty Notification Letter,
3. Facilitate the removal of barriers, and

4. Ensure you have equal access to the same opportunities for success that are available to all students.

If you have questions, contact SDS at 662-915-7128 or sds@olemiss.edu.

Student Counseling Services: Being a student is difficult. You may experience emotions and challenges that interfere with your course work. Having anxiety, relationship problems, depression, or substance abuse issues can lead to lack of motivation and make concentrating difficult. This is not uncommon. If you experience any of these, know that you are not alone. Help is available! We are fortunate to have an excellent counseling center available to all students. They can be reached at 662915-3784 or counslg@olemiss.edu. If you are uncomfortable making the contact, come see me and I will help you get the resources you need.

Students and Basic Needs: Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact UMatter Student Support and Advocacy at (662) 915-7248 or kforster@olemiss.edu. Students who struggle to afford groceries or access sufficient food to eat are especially encouraged to visit the University Food Bank in 213 Kinard Hall or email olemissfoodbank@gmail.com. Students who are struggling to meet their basic needs may also find the following website helpful: FindHelpLafayetteCounty.org.

Sexual Assault and UMatter: Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources in the Title IX Office in Martindale 270 D or at (662) 915-7045

UMatter Student Support Services and Advocacy provides free and confidential information, consultation, support, advocacy to University of Mississippi students and graduate students who have experiences a traumatic, disturbing or life disruptive event. UMatter is not a part of the police department, or the Equal Opportunity and Regulatory Compliance office, and is a confidential resource for students.

If you have questions about UMatter services, or if you'd like to talk with an advocate , please call (662) 915-1059 or email sapoole@olemiss.edu. If you would like to meet with a UMatter Advocate, please stop by the Ole Miss Union Suite 301, Monday through Friday from 8:00 a.m. – 5:00 p.m.

Flexibility Clause: Content in this syllabus is subject to change by the instructor.