Course Syllabus

Course Information

Course number:	CS 4384
Section:	504
Course title:	Automata Theory
Term:	Spring 2023

Note 1: *The descriptions and timelines below are subject to change at the discretion of the instructor. We will notify students as soon as there is an update. The instruction modality for this course is* ***Traditional Classroom.*** *That means, all the lectures and exams will be held in person. There will be no online sessions or take-home exams.*

Professor Contact Information

Instructor:	Serdar Erbatur
Office:	ECSS 3.603
Office Hours:	Monday - Wednesday 2:45pm-3:45pm or by appointment
Email:	sxe190003@utdallas.edu

Course Pre-requisites, Co-requisites, and/or Other Restrictions

CS 3305 with a grade of C or better

Course Description

A review of the abstract notions encountered in machine computation. Deterministic and nondeterministic finite automata; regular expressions, regular sets, context-free grammars, pushdown automata, context-free languages. Selected topics from Turing Machines and undecidability.

Student Learning Objectives/Outcomes

1. Ability to design and convert between DFA, NFA and regular expressions;
2. Ability to show that certain languages are not regular;
3. Ability to design and convert between PDA and CFGs;
4. Ability to show that certain languages are not context-free;
5. Ability to design and analyze Turing machines;
6. Ability to prove and apply the Halting Problem to other undecidable problems.

Required Textbooks and Materials

Michael Sipser, *Introduction to the Theory of Computation,* 3rd Edition, 2012.

Assignments & Academic Calendar

There will be four exams in this course. The exams will be open books and open notes. However, you will not be allowed to use any electronic devices.

	Date	**Location**
Exam 1	Thursday, 2/9/2023	In class
Exam 2	Thursday, 3/2/2023	In class
Exam 3	Thursday, 4/6/2023	In class
Exam 4	Thursday, 5/4/2023	In class

There will be no graded homework assignments in this course. Instead, you will be provided problem sets to study. Please note that these problem sets will **not** be part of your grade**.** They are offered to help you improve your understanding, sharpen your problem-solving skills, and help you prepare for in-class exams.

Grading Policy

Please read the explanation below carefully.

Your final grade will be calculated based on your exam scores. There is no extra credit work or any other activity that will affect your grade.

How will your average score be calculated?
This will be done in two steps:

1. I will calculate the average score of your **first three exams.**
2. If your Exam 4 score
    a. **is higher than the average score of your first three exams**, then I will count it while calculating your final average score.
    b. **is lower than the average score of your first three exams,** then I will discard it.

Note that I will count your Exam 4 score if it helps improve your overall average.

Final letter grades will be calculated using the following scheme.

96 - 100: A+
92 – less than 96: A
88 – less than 92: A-
84 – less than 88: B+
80 – less than 84: B
76 – less than 80: B-
72 – less than 76: C+
69 – less than 72: C
66 – less than 69: C-
63 – less than 66: D+
60 – less than 63: D
57 – less than 60: D-
0 – less than 57: F

Course & Instructor Policies

Any further detail will be announced on eLearning. Please read the following carefully.

1. **To succeed in this course, you must attend the lectures.** It is unlikely to be successful in the exams without being present in class and interacting with me.

2. My door will be open most of the time during the week. To be sure that you will find me in my office, you can email me to set up an appointment as well.

3. There will be no review sessions in class before the exams. It is your task to review the class material frequently and come to my office for clarifications.

4. If you want to discuss your exam grades with me, you will need to come to my office. I will not reply to emails requesting feedback for exam performance, explanations why some points are lost, or updates in the exam scores.

5. If a student is unable to take an exam on a scheduled date, they should inform me in advance. Makeup exams will be scheduled only if the student has **a valid medical excuse provided in a duly signed letter**.

6. **Important:** When studying the problem sets posted on eLearning, you must avoid referring to internet resources. There is no need to do that since the problems set are not part of your grade. Please use the lecture notes and your textbook to solve the problems. Also, you can discuss with me. When posted, you must thoroughly review the solutions and compare them with yours. This will help you understand the course topics better.

7. Please do not ask for extra credit for problem sets. They will not be graded and are not part of your grade. Emails regarding this issue will be ignored.

8. The course teaching assistant will hold office hours and provide you clarifications if you need. You may want to check if your TA prefers to meet via MS Teams on in their office.

9. To review grades of exams, a request must be made **within one week** after the grades are posted. After that, all requests will be ignored.

10. **Please do not send me emails about raising your final grades at the end of semester. Your final grade will be based on your performance.**

11. If you want to drop the class, you must make sure to take Drop or Withdrawal actions via official channels of the university. Otherwise, you may receive an **F** or **NF** for the course.

Please see http://go.utdallas.edu/syllabus-policies for policies of the university. We follow the UTD policies while running our courses.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."
