CS 301 Syllabus

Course Overview

Languages and Automata is an introduction to formal languages and computability of decision problems. This is a heavily theoretical course that will require strong critical thinking and strong proof fundamentals. Discrete Math (CS151) is a pre-requisite and Data Structures (CS251) is a co-requisite.

In this course, we will discuss several models of computation, from simple finite state machines to the Turing machine. Alongside, this course will describe and formalize the types of languages that can be computed by automata of each model. Because this course builds on itself, it is especially important not to fall behind. The course staff and I will be available often throughout the week to help if this ever happens. Below, find the rough course schedule, along with the relevant readings from Sipser "Introduction to the Theory of Computation"

	Tuesday	Thursday
Week 1	Introduction (Chapter 0), Syllabus	
Week 2	DFAs (Chapter 1.1	
Week 3	NFAs (1.2), Regular Expressions (1.3)	
Week 4	Regular Expressions, Non-regular languages (1.4)	
Week 5	Applications and Intro to Grammars	
Week 6	Exam Review	Midterm 1
Week 7	Context-Free Grammars (2.1)	
Week 8	Pushdown Automata (2.2), Non-context Free Grammars (TBD)	
Week 9	Turing Machines (3.1)	
Week 10	Turing Machines (3.2)	
Week 11	Exam Review	Midterm 2
Week 12	Decidability (Chapter 4)	
Week 13	Reducibility (Chapter 5)	
Week 14	Time Complexity (Chapter 7.1-7.3)	Thanksgiving Break
Week 15	NP-Completeness (Chapter 7.4-7.5)	

Staff and Office Hours

Instructors

Evan McCarty (emccarty@uic.edu)

- Office Hours (SEO 931): Wednesdays, 1:00-3:00pm

Omar Ibrahim (oibra@uic.edu)

- Office Hours (SEO 1137): Tuesday 3:30 - 4:30 PM

Since all three sections are combined, all TAs will be available for all students. Office hours will start on week 2.

	Monday	Tuesday	Wednesday	Thursday	Friday		
9:00		Kathleen					
9:30							
10:00				Vibuh	Yashwi		CS Lounge
10:30							Grad Office
11:00	Nirgun						Online
11:30							
12:00							
12:30							
13:00	David		McCarty				
13:30		Boi	SEO931				
14:00							
14:30							
15:00	Jack		Jade				
15:30		Ibrahim		Teresa			
16:00		SEO1137					
16:30		Boi					
17:00	Yiming						
17:30							
18:00							
18:30				Yiming			
19:00	Jurat						
19:30							
20:00							
20:30							

Course Modality

This course meets for two in-person lectures a week on Tuesday & Thursday at the following times:

- CRN 10647: 12:30 - 1:45PM, SES 130

- CRN 42220: 2:00 - 3:15PM, ARC 242

- CRN 45948: 3:30 - 4:45PM, ARC 242

You will also have a lab section in-person on either Wednesday or Thursday in-between lectures (see below for further details on labs).

Course Websites

- **Piazza** is an integral part of communication in this course between students and the course staff. Please check the page for questions, as many students have the same questions and answers can often be found there. Additionally, piazza will be the primary method of course-wide announcements. Course material can be found under the resources tab.

- **Gradescope** is the website where you will submit all written work for the course. It is also where you will receive graded feedback. When work is returned, you have one week to submit a regrade request through Gradescope.

- **Blackboard** will contain a copy of all work and will also be the location of the gradebook. All grades will be accurate on blackboard before each of the three exams.

Grade Breakdown

Your grade in this course consists of the following parts:

15%	Labs
25%	Homework
15%	Midterm 1 (Sept 28th, in-lecture)
15%	Midterm 2 (Nov 2nd, in-lecture)
30%	Final Exam (Usually announced around week 10)
(5%)	Extra Credit

Labs

Each week from Week 2 on, there will be an assigned set of problems for the lab. **You may work on these assignments in groups but each student must submit their own solution** and each problem will be graded with a half points for attendance and full points for completion. No deductions will be made for small errors. There will be no lab during weeks 6 and 11 for the exams. Additionally, there will be no lab for the first week.**Your lowest two lab grades will be dropped**

Homework

There will be six homework assignments. They will be equally weighted and will be distributed throughout the semester. **Your lowest homework assignment will be dropped** Homework assignments will be due at 8:00pm on Wednesday nights. See *Late Policy* for additional information.

Exams

Three exams will make up the remaining 60% of the course. They are closed-book, but you may bring a single sheet. The midterms will be on Thursday of weeks 6 and 11 during lecture. Midterm 1 will be Sept 28th. Midterm 2 will be Nov 2nd.. Both midterms will take place in the lecture rooms. The final will be a combined final, which is currently being scheduled. Additionally, as seen on the schedule, the lecture before each exam is set aside for exam review.

Late Policy

Each student will receive 5 late days that they can use on **homework only** submitted through Gradescope. **No more than 2 late days may be used on any assignment**. There is no benefit to retaining late days at the end of the quarter and late days are deducted automatically. **No credit will be given for late submissions if the student does not have a late day.** Submissions are due at 11:30. **Please make sure your submissions are correctly uploaded after you submit to Gradescope**. Each question will be its own submission.

If a situation arises for which late submissions are excusable, please let me know as soon as possible. I am willing to accommodate unforseeable circumstances if there is a reason you will be late.

Classroom Norms and Expectations

Our class (in person and online) will follow the CS Code of Conduct (https://www.cs.uic.edu/g̃rad/CS_Code_of_Conduct.pdf). If you are not adhering to our course norms, a case of behavior misconduct will be submitted to the Dean of Students and to the Director of Undergraduate Studies in the department of Computer Science. If you are not adhering to our course norms, you will not get full credit for your work in this class. For extreme cases of violating the course norms, credit for the course will not be given.

Academic Honesty

Cheating not only deprives you of practice and understanding, but it is also unfair to the rest of your class. Any assignment that has copied or paraphrased solutions will receive a zero and the affected students will drop one letter grade. Additionally, the report will be filed with the Dean's office. **No exceptions**.

We do still encourage academic discussion between classmates. University policies clearly delineate acceptable and unacceptable behavior. As a rule-of-thumb, it is always acceptable to discuss clarifications or course material, but discussing or sharing solutions to problems is not allowed.

Accommodations

Disability Accommodations

UIC is committed to full inclusion and participation of people with disabilities in all aspects of university life. If you face or anticipate disability-related barriers while at UIC, please connect with the Disability Resource Center (DRC) at drc.uic.edu, via email at drc@uic.edu, or call (312) 413-2183 to create a plan for reasonable accommodations. In order to receive accommodations, you will need to disclose the disability to the DRC, complete an interactive registration process with the DRC, and provide me with a Letter of Accommodation (LOA). Upon receipt of a LOA, I will gladly work with you and the DRC to implement approved accommodations.

Religious Accomodations

I will make every effort to avoid scheduling exams or requiring homework be submitted on religious holidays. If you wish to observe your religious holidays, please notify me by the tenth day of the semester of the date when you will be absent unless the religious holiday is

observed on or before the tenth day of the semester. In such cases, please notify me at least five days in advance of the date when you will be absent. If an examination is given during your absence, you will be given an exam equivalent to the one completed by those students in attendance. If an assignment is due during your absence, you may receive an extension to submit the assignment late without penalty. Students may appeal through campus grievance procedures for religious accommodations.

Getting Help

This course has many opportunities to get help if you find a problem challenging. Being productive with your time and work are important collegiate skills. Coming to office hours before starting a problem can be unproductive, but working on a problem after you've become stuck is even less so. If you fail to make any progress on a problem in 15 or 20 minutes, consider the following options.

- Check Piazza to see if other students have the same problem as you.

- Visit office hours to get help and clarification

- Talk with other students about relevant material

- Take a break, and return after your mind has relaxed.

Once you've become frustrated with a problem, it is difficult to make progress. Recognizing that you need help can be a difficult, but important step in your education. These assignments and projects are meant to test your understanding, they are not meant to be completed quickly and easily.

Resources: Academic Success, Wellness, and Safety

We all need the help and the support of our UIC community. Please visit my drop-in hours for course consultation and other academic or research topics. For additional assistance, please contact your assigned college advisor and visit the support services available to all UIC students.

Academic Success:

- UIC Tutoring Resources

- College of Engineering tutoring program

- Equity and Inclusion in Engineering Program

- UIC Library and UIC Library Research Guides.

- Offices supporting the UIC Undergraduate Experience and Academic Programs.

- Student Guide for Information Technology

- First-at-LAS Academic Success Program, focusing on LAS first-generation students.

Wellness:

- **Counseling Services**: You may seek free and confidential services from the Counseling Center at https://counseling.uic.edu/.

- Access U&I Care Program for assistance with personal hardships.

- **Campus Advocacy Network**: Under Title IX, you have the right to an education that is free from any form of gender-based violence or discrimination. To make a report, email TitleIX@uic.edu. For more information or confidential victim services and advocacy, visit UIC's Campus Advocacy Network at http://can.uic.edu/.

Safety:

- UIC Safe App—PLEASE DOWNLOAD FOR YOUR SAFETY!

- UIC Safety Tips and Resources

- Night Ride

- Emergency Communications: By dialing 5-5555 from a campus phone, you can summon the Police or Fire for any on-campus emergency. You may also set up the complete number, (312) 355-5555, on speed dial on your cell phone.