



Course Website

Blackboard: uic.blackboard.com/ultra/courses/_295621_1/cl/outline

Piazza: piazza.com/uic/fall2025/cs301

Gradescope: gradescope.com/courses/1092192

All grades and course materials (lecture slides, lecture videos, quizzes, homework assignments, lab assignments, etc.) will be posted on *Blackboard*.

All course communication will occur on Piazza (see **Piazza** section for details).

Course Description

Regular sets and finite automata. Context-free languages and push-down automata. Parsing. Computability theory including Turing machines and decidability. *Course Information:* 3 hours.

"Computer scientists frequently need to solve computational problems. But what is a good strategy for doing so? [...] When a new problem presents itself, some fundamental questions must be asked and answered. Is the problem computable? [...] Is the problem tractable? [...] How can we compare the efficiency of competing methods for solving it? To ask and answer each of these questions, you will need to know something about the theory of computation."

John MacCormick, What Can Be Computed? A Practical Guide to the Theory of Computation (2018)

Schedule of Topics

The topics covered in each lecture are shown in the course schedule. We will cover the following topics:

Week	Topics
1	Sets, Strings and Languages
2	Deterministic Finite Automata (DFAs)
3	Nondeterministic Finite Automata (NFAs)
4	Regular Expressions
5	Pumping Lemma for Regular Languages
6	Grammars
7	Context-Free Grammars (CFGs)
8	Pushdown Automata (PDAs)
9	Pumping Lemma for Context-Free Languages
10	Turing Machines
11	Decidability
12	Reducibility
13	Time Complexity
14	Class P and NP
15	NP-Completeness



Prerequisites

- CS 151: Mathematical Foundations of Computing or CS 201: Data Structures and Discrete Mathematics I with a grade of C or better.
- CS 251: Data Structures.

Textbook

The following textbook is **recommended**:

- Introduction to the Theory of Computation (2nd or 3rd Edition) by Michael Sipser.

Piazza

All course communication will occur on Piazza. This includes announcements from instructors and TAs and questions from students. **Please don't email the teaching staff directly.**

You are strongly encouraged to participate actively on *Piazza*. The teaching staff will monitor the message boards and endorse correct answers from students. **Posts unrelated to the course are not allowed and will be deleted.**

When posting, you should follow these guidelines:

- *Search before posting*; your question may have already been answered.
- *Use an appropriate tag* (e.g., hw1, lab1, exam1, lecture).
- *Post publicly* when possible so other students can benefit from your question. Use private messages only for grading issues or posts of a personal nature. You may post anonymously to other students (but the teaching staff will still see your name).
- **Don't post answers to assignment questions**; instead, offer hints or clarifications of the material.

iClicker

We will use [*iClicker*](#) for class participation. To join the course in *iClicker*, please follow the instructions below.

- If you are in **Section A** (01:00PM), go to: join.iclicker.com/JTEH.
- If you are in **Section B** (03:00PM), go to: join.iclicker.com/KFYU.
- Create an *iClicker* account by entering your first name, last name, email, and NetID. **Make sure that you use your UIC email**. If you already have an *iClicker* account, you should just sign in.

To participate in the lectures, you must sign into your *iClicker* account from your computer or use the *iClicker Student* app from your phone. **You don't have to pay anything for this.**

We will start using *iClicker* in the second lecture (**Wednesday, August 27**).

Office Hours

For office hours, see **Office Hours Schedule** on the **Home** page of *Blackboard*. We strongly encourage you to attend office hours throughout the semester. Office hours are a place for you to ask questions about the material or the assignments. Here is some advice to make the most out of office hours:



- *Go early and often!* Each topic relies on a strong understanding of what came before so you should make sure you understand all the material as it comes up.
- Even if you are not sure what questions to ask, *you can still go to office hours!* You may benefit from questions from other students and you can work through problems together with instructors and TAs.
- *You don't have to arrive exactly at the start of the office hours;* you can arrive (and leave) at any time before it ends.

All office hours for the course (including instructor office hours) will be held in CDRLC 2402. A table in this room has been labelled and assigned as class space for CS 301. You are welcome (and encouraged) to use this space Monday to Friday from 8:00am to 7:00pm to work on the course. For more information about the new CS building, including rules and policies, see the CS department's [Fall 2025 Welcome Guide](#).

TA office hours will start in the second week of classes (from **Tuesday, September 02**).

Grading

The final grade will be determined by the following components:

Component	Quantity	Weight	Details
iClicker Participation	Every lecture	5%	Individual, in person
Quizzes	10	10%	Individual, online
Lab Assignments	10	10%	Individual, in person
Homework Assignments	5	25%	Individual, online
Midterm Exams	2	30%	Individual, in person
Final Exam	1	20%	Individual, in person
Extra Credit	-	Up to 1%	See Extra Credit section below

The final letter grade will be determined using the following scale:

$90 \leq A \leq 100$; $80 \leq B < 90$; $70 \leq C < 80$; $60 \leq D < 70$; $0 \leq F < 60$

To pass this course, you must achieve an average grade of at least 40% on the exams (including the final exam). Otherwise, you will receive an **F** in the course regardless of your overall grade.

Extra Credit

You may earn up to 1% of the course grade as extra credit by submitting optional assignments (e.g., bonus assignments, practice exams). Additional opportunities for extra credit may be offered at the discretion of the instructor.

Course Policies

Attendance

Attendance to lectures and discussion sessions is required. All lectures will be recorded and posted on *Blackboard*. You are responsible for making up any course material covered during missed classes.



iClicker Participation

iClicker participation will be recorded at every lecture. You must attend the lecture and answer the *iClicker* questions with your computer or the *iClicker Student* app to receive credit for that lecture. Answers for *iClicker* questions will be graded on completion, not correctness.

Additionally, you may miss up to 5 lectures without any penalty. This drop policy is intended to cover absences from illness, sports, personal emergencies, etc. and will be applied automatically at the end of the semester.

Exams

This course has two midterm exams and one final exam. Exams will be taken in person on campus. Dates and times for exams are shown in the course schedule. Locations will be announced to the class closer to the exam date.

There will be no make-up if you miss an exam. We will offer an alternate exam to students who need to miss the scheduled exam for documented and legitimate conflicts but you must notify us in advance by making a private post on *Piazza* as soon as you can. If you experience an emergency on the day of the exam, you must notify us as soon as possible and provide documentation to take the alternate exam.

Quizzes

Quizzes will be taken online on *Blackboard*. Due dates for quizzes are shown in the course schedule. The deadline for the submission is Friday at 11:59PM (Central Time) on the week due. There will be no quiz during the first week of classes. The first quiz will be due on **Friday, September 05**.

Only 10 quizzes will be counted towards the final grade. The three lowest quiz grades will be dropped at the end of the semester.

Lab Assignments

Lab assignments will be completed in person during discussion sessions and must be submitted at the end of each session. You may discuss the problems with other students and ask questions to the TAs, but you must submit your own work and your solutions must reflect your individual understanding. Dates for lab assignments are shown in the course schedule. There will be no discussion sessions during the first week of classes. The first discussion sessions will be on **Friday, September 05**.

Only 10 lab assignments will be counted towards the final grade. The three lowest lab assignment grades will be dropped at the end of the semester.

Homework Assignments

Homework assignments must be submitted on *Gradescope*. Further instructions for the submission will be given in each homework assignment. Due dates for homework assignments are shown in the course schedule. The deadline for the submission is Sunday at 11:59PM (Central Time) on the week due. Any deadline extensions are up to the discretion of the instructor and will be announced to the class.

Only 5 homework assignments will be counted towards the final grade. The lowest homework assignment grade will be dropped at the end of the semester.



Late Submissions

Late submissions of homework assignments will be accepted within 0-12 hours after the deadline with a 5-point penalty and within 12-24 hours after the deadline with a 10-point penalty. No late submissions (penalty or not) will be accepted more than 24 hours after the deadline.

Regrade Requests

Regrade requests for assignments and exams may be submitted on *Gradescope*. Regrade requests will not be accepted more than one week after grades for that assignment or exam have been posted. To request a regrade, you must follow these guidelines:

- *Review the sample solution* (on *Blackboard*) to understand how to solve the problem.
- *Review the grading rubric* (on *Gradescope*) to understand how points were assigned.
- Based on the sample solution and the grading rubric, *write a clear and complete description* explaining why you should receive more points in the problem.

If you don't follow these guidelines, the teaching staff will dismiss your regrade request without further review.

Academic Honesty

All assignments, quizzes, and exams are individual. You are required to submit your own solutions and acknowledge any sources used. For lab assignments, you may discuss the problems with other students during discussion sessions but your solutions must still reflect your individual understanding. For quizzes and exams, no discussion between students is allowed.

Offering or receiving any kind of unauthorized or unacknowledged assistance (from students, friends, family, tutors, textbooks, generative AI tools, or the Internet) is a violation of the University's academic integrity policies, will result in a grade of zero for the assignment and will be subject to disciplinary action (see **Academic Integrity** section below).

Academic Integrity

As an academic community, UIC is committed to providing an environment in which research, learning, and scholarship can flourish and in which all endeavors are guided by academic and professional integrity. All members of the campus community—students, staff, faculty, and administrators—share the responsibility of insuring that these standards are upheld so that such an environment exists. Instances of academic misconduct by students will be handled pursuant to the [Student Disciplinary Policy](#).

Disability Accommodations

UIC is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities. Students with disabilities who require accommodations for access to and/or participation in this course are welcome but must be registered with the Disability Resource Center (DRC). You may contact the DRC at 312-413-2183 (v) or 773-649-4535 (VP/Relay). For more information on UIC's policies on working with students with disabilities, please see the University's [Guide for Accommodating Students](#).



DRC Students

Please submit your **letter of accommodation** as soon as possible using [this form](#). We also encourage you to meet with your instructor at the start of the semester to discuss your needs and to keep them updated throughout the semester with any concerns that arise.

If you have an extended length or distraction-reduced exam, you should schedule your exams with the DRC. You should schedule each midterm exam at least one week in advance and the final exam at least two weeks in advance to make sure you get a seat. Additionally, **you must schedule each exam to overlap with the regular exam time**. If this is not possible, please contact your instructor.

Religious Holidays

Students who wish to observe their religious holidays shall notify the faculty member by the tenth day of the semester of the date when they will be absent unless the religious holiday is observed on or before the tenth day of the semester. In such cases, the student shall notify the faculty member at least five days in advance of the date when they will be absent. The faculty member shall make every reasonable effort to honor the request, not penalize the student for missing the class, and if an examination or project is due during the absence, give the student an exam or assignment equivalent to the one completed by those students in attendance. If the student feels aggrieved, they may request remedy through the campus grievance procedure.

Mental Health

We value your mental health and emotional wellness as part of the UIC student experience. The UIC Counseling Center offers an array of services to provide additional support throughout your time at UIC, including workshops, peer support groups, counseling, self-help tools, and initial consultations to speak to a mental health counselor about your concerns. Please visit the [Counseling Center](#) website for more information. Further, if you think emotional concerns may be impacting your academic success, please contact your faculty and academic advisers to create a plan to stay on track.

Classroom Environment

This course will follow the [UIC Department of Computer Science Code of Conduct](#). Non-compliance will be reported to the Director of Undergraduate Studies, and possibly the Dean of Students and the Office for Access and Equity.

UIC is committed to the most fundamental principles of academic freedom, equality of opportunity, and human dignity involving students and employees. Freedom from discrimination is a foundation for all decision making at UIC. Students are encouraged to study the University's [Nondiscrimination Statement](#). Students are also urged to read the University's [Public Formal Grievance Procedures](#). Information on these policies and procedures is available on the website of the University's [Office of Access and Equity](#).

NOTE: The syllabus is subject to change.

Last Modified: September 09, 2025