

CS 321 Intro to Theory of Computation

CRN 35530 - 3 credits

OSU catalog course description including pre-requisites/co-requisites: Survey of models of computation including finite automata, formal grammars, and Turing machines. **PREREQS:** CS 261 [C] and (CS 225 [C] or MTH 231 [C])

Courses that require this as a prerequisite: CS 480.

Instructor: Julianne Schutfort

Section: 001, T&Th 10 – 11:20 am, LINC 302.

Office: 1103 Kelley Engineering Center **Office Hours:** Posted on Canvas

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TA info:

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Textbook: ***An Introduction to Formal Languages and Automata*** by Peter Linz, Sixth Edition.

Software: JFLAP Software . JFLAP can be downloaded without charge from www.jflap.org.

Canvas: Announcements, office hours, weekly homework assignments, readings and other course information will be placed on Canvas.

Course Content:

- Regular languages,
- Context-free languages and
- Turing Machines

Course Learning Outcomes:

At the completion of this course, students will be able to:

1. Convert between finite automata, regular grammars, and regular expression representations of regular languages.
2. Apply the pumping lemma for regular languages to determine if a language is regular.
3. Convert between grammars and push-down automata for context-free languages.
4. Determine if a language is regular or context-free.
5. Demonstrate that a grammar is ambiguous.
6. Translate a context-free grammar from one form to another.
7. Produce simple programs for a Turing Machine
8. Explain the concept of undecidability
9. List examples of undecidable problems.

Grade Evaluation: Your course grade will be based on the following:

Homework	-----	50%
Exams 1& 2 @ 15%	-----	30%
Final Exam	-----	20%
TOTAL	-----	100%

Homework:

There are seven written homework assignments. Students can discuss the homework questions with each other but must independently write up a solution. A subset of the homework problems will be graded.

Grading Policies:

- 1) Any requests for extensions/special accommodations must be made in advance, in writing and sent to the instructor via Canvas messaging.
- 2) Assignments that are not neatly written up using a word processor/text editor will not be graded.
- 3) Homework submitted up to 24 hours late will receive a 10% penalty.
- 4) Any **disagreement in scoring** must be addressed within one week of the work being graded. All questions about grading must be placed in the "Assignment Comments" section of the Canvas submission for that assignment. If a response to your comment is not posted within 48 hours you can email a TA requesting that they review the comments.
- 5) Your low homework score will be dropped

Exams:

There are 3 exams for this course as listed on the class schedule. You will have 75 minutes to complete Exam 1 and Exam 2. You will have 110 minutes for the cumulative Final Exam. You will be allowed one 8.5"x11", double-sided, typed-or-handwritten note sheet for each exam. The dates of the exams are listed on the schedule and Canvas calendar.

Grading Scale:

Note: Numerical scores will be rounded to the nearest integer

Grade	Average
A	93 or greater
A-	90 - 92
B+	87 - 89
B	83 - 86
B-	80 - 82
C+	77 - 79
C	73 - 76
C-	70 - 72
D+	67 - 69
D	63 - 66
D-	60 - 62
F	less than 60

Course Policies:

Makeup Exams – Makeup exams take a considerable effort to schedule, so they will not be given under normal circumstances. Any requests for makeup exams must occur in the first week of classes to be considered.

Incompletes –I will only consider giving an incomplete grade for emergency cases such as a death in the family, major disease, or child birth, while also having a passing grade. If you have a situation that may prevent you from completing the coursework, let me know as soon as you can.

Students With Disabilities: Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.

Expectations for Student Conduct:

Academic Integrity: Students in academic studies are expected to demonstrate their own knowledge and capabilities. This means that a student will be graded on the work that is clearly their own work and that additional materials will be excluded from consideration of the grading of that submission. Work that is not created by the student or cited by the student, but still submitted will be considered plagiarized material and may result in a failed submission and may result in administrative action.

- You May openly discuss the presented learning materials and participation category materials at any time with any party as long as they explicitly know that it is for an academic assignment,
- You May openly discuss the demonstration category of coursework and exams category of coursework after grading of the item is complete with any party as long as they explicitly know that it is an academic assignment and that the discussion is accompanied by an explanation of any materials presented,
- You MAY openly discuss the meaning of assignments, general approaches, and strategies with other students in the course; you may do this even before the grading date of the assignment has passed.
- You MAY (and should) use the Internet and other resources to research how to solve a problem, and you should share what you find for others in the course to learn from, but be sure to cite your sources!

We may use plagiarism-detection software to check your assignments against a known database of solutions. If you are found in violation of any of the above policies, whether you are the giver or the receiver of noncited help, you may be given a zero on the assignment, failed from the course, or receive higher administrative action. The academic dishonesty charge will be documented and sent to your school's dean and the Office of Student Conduct. The first offense may result in a warning; the second offense results in an academic dishonesty charge on your transcript, a disciplinary hearing, and possible expulsion.

Course Evaluation:

OSU Student Evaluation of Teaching – Course evaluation results are extremely important and are used to help me improve this course and the learning experience of future students. Results from the multiple choice questions are tabulated anonymously and go directly to instructors and department heads. Student comments on the open-ended questions are compiled and confidentially forwarded to each instructor, per OSU procedures. The online Student Evaluation of Teaching form will be available toward the end of each term, and you will be sent instructions through ONID. You will login to “Student Online Services” to respond to the online questionnaire. The results on the form are anonymous and are not tabulated until after grades are posted.