

CS 321 Intro to Theory of Computation

3 credits

OSU catalog course description including pre-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 Coffman **E-mail:** coffmaju@oregonstate.edu

Section: 001, MTuWTh 2:00 –2:50pm PST, KEC 1103

Help: Office hours 1:00 – 1:50pm MTWTh in KEC 1103.

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, quiz reviews 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.

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.

Grading:

Scores for coursework items will be posted on Canvas as they are graded.

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

Homework	45%
Quizzes	45%
In-Class Activities	10%
TOTAL -----	100%

Homework:

There are five written homework assignments. Students can discuss the homework questions with each other but must independently write up solutions. You must use the notation presented in the class, notes and textbook to receive credit. If you use notation from other sources you will receive a 0 on that question. All homework must be completed using a word processor, text editor or typesetting software and you will submit a pdf formatted file in Canvas. Handwritten assignments will receive a 0.

Quizzes:

There are 3 quizzes for this course as listed on the class schedule. You will have 55 minutes to complete each quiz. The quizzes will be administered in class. The quizzes are **NOT** cumulative.

In-Class Activities (ICA):

Activities will be completed in groups during class and are due at the end of class.

Grading Policies and Scale:

- 1) Any requests for extensions/special accommodations must be made in advance, in writing (email).
- 2) Homework will be accepted up to 1 day late for a 10% penalty.
- 3) 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 you may post another comment.

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

University Policies

Academic Calendar:

All students are subject to the registration and refund deadlines as stated in the Academic Calendar: <https://registrar.oregonstate.edu/osu-academic-calendar>.

Statement Regarding Students with Disabilities:

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Face Covering Guidance & Public Health Policy:

The University's guidance for face coverings will be upheld in the classroom. Since the policy may change as the situation evolves please refer to the following link:

<https://covid.oregonstate.edu/face-covering-guidance-public-health-policy>

Expectations for Student Conduct:

<https://beav.es/codeofconduct>

Reach Out for Success:

University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success at oregonstate.edu/ReachOut . If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255)

Student Bill of Rights:

OSU has twelve established student rights. They include due process in all university disciplinary processes, an equal opportunity to learn, and grading in accordance with the course syllabus: <https://asosu.oregonstate.edu/advocacy/rights>