CS 321 Intro to Theory of Computation
3 credits

OSU catalog course description including pre-requisites/co-requistes: 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, TR 10:00 – 11:20pm, KEAR 212
Office: 1103 Kelley Engineering Center   **Office Hours:** Posted on Canvas weekly
E-mail: schutfoj@engr.oregonstate.edu

Textbook: _**An Introduction to Formal Languages and Automata**_ by Peter Linz, Fifth or Sixth Edition.
Software: JFLAP Software . JFLAP can be downloaded without charge from www.jflap.org.

Canvas: Announcements, office hours, weekly homework assignments, group activities, 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.

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/Activities   ------------------ 40%
Exams 2 @ 15% -------------------------- 30%
Final Exam   ------------------------------- 30%
TOTAL ----------------------------------- 100%

Homework & Activities:

There are seven written homework assignments. Students can discuss the homework questions with each other but must independently write up a solution. Assignments are to be submitted in Canvas by due date. A subset of the homework problems will be graded.   Activities will be completed in small groups in class and due at the end of class on the dates listed in the class schedule.

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 Final Exam. You will be allowed one 8.5"x11", double-sided, typed-or-handwritten note sheet for each exam. The final exam is Wednesday at 2:00pm.

REMINDER: A passing grade for classes in CS is a C or above. A C- in a CS course is not considered a passing grade toward a CS degree.

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.

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

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.
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> - 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,
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> - 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.
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> - 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!

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.