1 Course Description

This is an elementary study of theoretical aspects of computer science. Topics in formal languages and automata theory are covered including regular languages, regular expressions, finite automata, context-free languages, pushdown automata, grammars, Turing machines, and unsolvable problems.

This is a web-based class requiring independent responsibility and online communication skills on the part of the student. There are no regularly-scheduled class meetings.

1.1 Course Objectives

Students completing this course should be able to:

- Demonstrate knowledge of the primary mathematical models of computation (automata) that underpin Computer Science.
- Demonstrate knowledge of formal languages and their relationship to automata.
- Be able to construct, work with, and prove properties of the basic forms of automata and formal languages.
- Understand and be able to discuss the relationship of automata and formal languages to practical issues in programming languages and software development.

2 Basic Information

2.1 Instructor

Course material, assignments & grades:

<table>
<thead>
<tr>
<th>Desh Ranjan</th>
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<tr>
<td>(757) 683-7711</td>
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<tr>
<td><a href="mailto:dranjan@cs.odu.edu">dranjan@cs.odu.edu</a></td>
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2.2 Teaching Assistant

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<th>Hussam Hallak</th>
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<tr>
<td><a href="mailto:hhallak@cs.odu.edu">hhallak@cs.odu.edu</a></td>
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Students may also use the “Hallway” forum in Blackboard for general questions about course content & self-assessments, but should not post questions there about graded material (specific questions on quizzes & exams).

Website Issues:

<table>
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<tr>
<th>Steven J. Zeil</th>
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<tr>
<td>E&amp;CS 3208</td>
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<tr>
<td>(757) 683-4928</td>
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<tr>
<td>Fax: (757) 683-4900</td>
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<tr>
<td><a href="mailto:zeil@cs.odu.edu">zeil@cs.odu.edu</a></td>
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Students may also use the “Janitor’s Closet” forum in Blackboard for general questions about the website and to post notifications about broken links and other issues. In fact, this is encouraged because it alerts other students to any ongoing problems.

2.2.1 Office Hours

Students may meet with Dr. Ranjan or the TA via internet-conferencing.

Dr. Ranjan’s office hours: 10:30 AM - 12:00 PM Tuesday Students may also request a different time by email.

TA’s office hours: 6:00 - 7:00 Thursday 6:00 - 7:00 Friday

Students are also welcome to use Dr. Zeil’s office hours, available on his home page (http://www.cs.odu.edu/~zeil) by clicking on “Office Hours and Appointments”.

2.3 Time & Location

Monday, Wednesday, Friday from 10:00 AM to 10:50 AM
The class meetings will be held using Zoom.

Students enrolled in the course will normally access lecture material via the ODU Blackboard system. Students thinking of taking the course or those wishing to review the course materials for other reasons will find it at https://www.cs.odu.edu/~zeil/cs390/latest/.

2.4 Text

The textbook for this course is


2.5 Course Prerequisites

- a grade of C or better in CS 250 and in CS 381
- Math 163

Students are also expected to be familiar with the use of standard Internet-based tools including email and web browsers.

3 Course Policies

3.1 Meeting Times

Monday, Wednesday, Friday from 10:00 AM to 10:50 AM

The class meetings will be held using Zoom.

3.2 Communications

Because this course does not have traditional lectures, most communication between instructor and students, apart from the Zoom class meetings, will need to be conducted electronically.

Questions and discussion are encouraged.

General questions about course content and reports of website problems should normally be asked in the public course Forum (on Blackboard). Questions about grades, how to solve assignments and other graded activities should be send to the instructor (dranjjan@cs.odu.edu) or the TA (hhallak@cs.odu.edu).

For more discussion on course communications, please refer to the Communications Policy.

3.3 CS Account

All students taking this course must have activated a login and e-mail account on the CS Dept.’s Unix network. (This is distinct from any Midas or other account you may have from the general University computer center – the ODU ITS).
You may have a CS account already if you were registered for a CS class in a recent semester. If not, you will need to create a new account. Go to the CS Dept. home page and look for “Account Creation”. All students in this course are responsible for making sure they have a working CS Unix account by the end of the first week of the semester.

### 3.4 Due Dates and Late Submissions

Late assignments and make-up exams will not normally be permitted.

Exceptions to this and other grading policies will be made only in situations of unusual and unforeseeable circumstances beyond the student’s control, and such arrangements must be made promptly, prior to the due date in any situations where the conflict is foreseeable.

“I’ve fallen behind and can’t catch up”, “I’m having a busier semester than I expected”, or “I registered for too many classes this semester” are not grounds for an extension.

### 3.5 Academic Honesty

Everything turned in for grading in this course must be your own work.

Exams and quizzes are, unless stated otherwise, open book, open-internet. You may not, however, consult with another human, either in person, or electronically, on exams and quiz material.

You are expected to conform to academic standards in avoiding plagiarism. See also the discussion on using external resources, below.

The instructor reserves the right to question a student orally or in writing and to use his evaluation of the student’s understanding of the assignment and of the submitted solution as evidence of cheating.

Students who contribute to violations by sharing their solutions with others may be found to be in violation of this policy. This includes showing material to other students in person and posting partial, complete, or even speculative solutions in any public area, whether physical or on the internet.

This policy is not intended to prevent students from providing legitimate assistance to one another. Students are encouraged to seek/provide one another aid in learning to use the support systems, or to general issues relating to the course subject matter. The same guideline applies to discussions, whether face-to-face or on-line, with anyone other than the course instructor and TAs – general aid on the subject matter of the course is OK. Specific discussions of solutions to any graded activity are forbidden.

Violations will be reported to the Office of Student Conduct and Academic Integrity.

#### 3.5.1 Using External Resources

In quizzes and exams, you may use “answers” that you find already posted on the internet (but may not solicit new ones) provided that you acknowledge your sources appropriately.

- If you use someone else’s thoughts, proofs, or arguments, you must cite your source appropriately, in a fashion that allows me to verify it.
- If you use someone else’s wording, you must enclose that wording in quotation marks and cite your source.
That said, you are responsible for making sure that the cited and/or quoted material is relevant to the question I asked, even when taken out of context from the original source.

- Nothing shows me that you do not understand the course material faster than copying an answer to a different question than the one I actually asked!

- Many of the lowest scores on prior semesters’ exams came from students copying and pasting answers that only matched the question I actually asked in a few key words or phrases.

- I have fairly low patience for this. If a clearly copied answer is not obviously relevant to the question I asked, I am not going to spend a lot of effort trying to study it and figure out ways in which it might be twisted into relevance.

Therefore,

- You are responsible for any alterations or bridging discussion necessary to make an copied argument or quotation match the question being asked.

- If the quoted source uses different notation schemes than what we have introduced in this course, you must reformulate the notation into that of this course.

- Be aware that different authors may have subtle differences in definitions of terminology, statement of theorems, etc. Again, if you quote external material, it is your responsibility to recognize and adjust for such differences.

### 3.6 Grading

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<tr>
<td>Quizzes</td>
<td>50%</td>
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<td>Midterm Exam</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
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Most modules of the course will include an quiz.

I will drop the lowest quiz score or the midterm exam exam score, whichever results in the greater improvement of your overall grade.

Further notes on grading.

### 4 General University Policies

The ODU Catalog lays out a wide variety of University policies that are binding upon both students and faculty. All students are required to abide by these.

### 4.1 Accomodation for Disabilities

Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility by providing Accommodation Letters to their instructors early in the semester in order to start receiving accommodations. Accommodations will not be made until the Accommodation Letters are provided to instructors each semester.