Instructor Information

**Instructor(s)**
Dr. Linda Barasch, sections 001, 002, 004 and 901  
Mary Koone, sections 003 and 900

All sections are intended to track together and cover the same material each day in a team teaching effort. Group grading decisions (such as performance adjustments) will be made separately for each section. The surprise assignment schedule may be different for each section. Each student must take exams with the student's own registered section.

**Office Number**
Dr. Barasch: ERB 643  
Mary Koone: ERB 310

**Office Telephone Number**
Dr. Barasch: 817-272-9763  
Mary Koone: 817-272-3785

**Email Address**
barasch@uta.edu  
mary.koone@mavs.uta.edu

**Faculty Profile**
https://mentis.uta.edu/explore/profile/linda-barasch  
https://mentis.uta.edu/explore/profile/mary-koone

**Office Hours**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Days</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Barasch</td>
<td>Mon/Wed</td>
<td>10AM-noon;</td>
</tr>
<tr>
<td>Mary Koone</td>
<td>Mon</td>
<td>noon-2PM;</td>
</tr>
<tr>
<td></td>
<td>Tues</td>
<td>5:30-7:30PM;</td>
</tr>
<tr>
<td>Revathy Ramamoorthy</td>
<td>Mon/Wed</td>
<td>4-6PM;</td>
</tr>
<tr>
<td>Poojitha Thota</td>
<td>Tues/Thurs</td>
<td>noon-2PM;</td>
</tr>
<tr>
<td>David Miller</td>
<td>Tues/Thurs</td>
<td>10AM-noon;</td>
</tr>
<tr>
<td>Arpitha Venkanna Patil</td>
<td>Thurs</td>
<td>5:30-7:30PM</td>
</tr>
<tr>
<td></td>
<td>Friday</td>
<td>4-6PM</td>
</tr>
</tbody>
</table>

For help with homework or understanding class concepts, students from every section may use the office hours of any of the current semester’s CSE 3315 instructors or TAs. Each of the above people will be available to all CSE3315 students online during office hours, via Teams. The exact mode will be announced. Instructors and Teaching Assistants are also available for these purposes by appointment or other contact methods with a delay in response.

For grade concerns, contact only the TA or instructor for your own section.
Course Information

Section Information
CSE 3315 section schedule. location, instructor, and teaching assistant:

001 9:30AM NH 105 Dr. Barasch Arpitha Venkanna Patil
002 2PM NH 105 Dr. Barasch Revathy Ramamoorthy
003 3:30PM NH 105 Mary Koone Poojitha Thota
004 8AM NH 105 Dr. Barasch David Miller
900 8AM online only concurrent section 003
901 3:30PM online only concurrent with section 004

Time and Place of Class Meetings
All classes meet on Tuesdays and Thursdays starting August 27, 2020, and continuing until December 8, 2020, which is the last scheduled day of class. Class will not be held on November 26. Each section takes place at a different time, as shown above. All sections meet in Nedderman Hall (NH) room 105. This class is being conducted in Hybrid mode 3, which has online content, a rotating in-class schedule, and two in-person exams. Class procedures are subject to change without prior notice, based on improvements to implementation, changing conditions, CDC recommendations or university policies.

This is a hybrid class, meaning that:

Classes will be simultaneously conducted in the classroom and via ECHO 360 live. The document camera will show visual material on the overhead projector and via multiple screens on ECHO 360 live. The method of remote instruction may change as better methods are developed. ECHO 360 recordings of the lectures will also be available on Canvas, with some delay.

Homework is assigned every time the class meets, with few exceptions. The assigned homework is due at the beginning of the next class period. Homework is turned in via Canvas, and must be submitted before class starts to be considered on time. Late assignments will not receive academic credit. Very few assignments will be graded, but grading will only be announced after the submission time has passed. The assignments selected for grading will be the same for all the students in a section, but different for each section.

Quizzes are administered at the start of class time. If a quiz is administered, both remote students and students in the classroom may take the quiz via Canvas, and students in the classroom may choose to submit quiz answers on paper. The quiz will be available only for the first 10 minutes of the class period. Any requests for accommodations due to special circumstances must be submitted several hours before the start of the quiz. Students who start the quiz late will have reduced time to complete the quiz, because the end time will remain constant.

Exams are administered in person (excepting the comprehensive final) at the times and places the university will schedule. In-person exams will be administered on paper, and students will complete the exams using only pencil and eraser, with in-person proctoring. Any students enrolled in remote (90X) sections of CSE3315 will take exams at the same time as students who take the exam in person. Remote exams will be administered via Canvas, using Respondus Lockdown Browser. A webcam is required. Canvas has links to instructions for loading Respondus Lockdown Browser. Remote exams require additional submissions to verify the integrity of the exam. The additional content must be submitted orally, facing the camera. For each answered question, the student must also explain the answer and the rationale behind the method used to solve the problem. The oral portion of the answered question will be reviewed in case of uncertainty about the meaning of the submitted answer, or to verify adherence to UTA’s academic honor code.
Attendance
At the University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. Social distancing guidelines have been used to modify the available seating for classrooms. This means there is not enough seating for all students. In-person attendance is a major success factor for CSE 3315, so we will use a rotating attendance policy.

The privilege of attendance for each class session is assigned, with the option to give the seat up. Because attendance confers a great academic advantage, students who are assigned to attend are expected to do so or give up the seat. If a class is not attended as scheduled, there will be a roll call and remediative measures will be taken. The following procedures are intended to ensure that as many students as possible who wish to attend class may do so.

A Canvas group has been set up for every day that in-person attendance will be possible. (These are the class sessions before Thanksgiving Break.) These groups represent the students who are expected to attend class on those days. Students have been randomly assigned to each group, and students are able to add and remove themselves from the groups.

Students are expected to look up which days they are assigned to attend, and remove themselves from the group for any day they will not attend. This allows students who wish to attend on those days to add themselves to the group. If necessary, a waiting list or other method will be implemented to ensure everyone an equitable chance to obtain vacated classroom places.

900 co-listed sections are entirely online, and students in this section are never scheduled to attend class in person, and there is not space reserved to accommodate 900 section in person attendance. Students in 900 sections are still required keep up with class material, submitting homework and logging in promptly at class time to check for surprise quizzes.

However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty must report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

Description of Course Content
Selected theoretical concepts including regular and context free languages, finite state and pushdown automata, Turing machines, computability, and NP-completeness.

Student Learning Outcomes
Students will understand the theoretical foundations in computer science and engineering, including the following:
- Strings, languages, countability and proof techniques
- Ability to create, describe, and use finite automata and regular languages
- Determinism vs. nondeterminism
- Ability to create, describe, and use pushdown automata and context-free grammars
- Ability to prove certain languages are/are not regular or context-free
- Ability to create, describe, and use Turing Machines
- The Church-Turing thesis and computability theory
- Computational complexity and the classes P, NP and NP-complete

Required Textbooks and Other Course Materials
Descriptions of major assignments and examinations
There will be 2 exams and a final comprehensive exam. In addition, there will be five or more graded surprise assignments (quizzes or homeworks) of which only the four highest grades will be used. The surprise assignment schedule may be different for each section. **Students are expected to keep track of their performance throughout the course** and seek *immediate* guidance from available sources (including the instructor) if their performance drops below satisfactory levels; see “Student Support Services,” below.

Technology Requirements
Remote class participation is required for every student at various times. A computing device capable of running and displaying Canvas is required, along with a webcam and microphone that may be controlled by the computing device.

Grading Information

Grading
Five graded surprise assignments (quizzes or homework) 16%
*lowest grade will be dropped, 4% each. The surprise assignment schedule may be different for each section.*
Two exams, 27% each
Comprehensive final, 30%

*Cutoffs for assignment of overall class letter grades:*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Cutoff</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
</tr>
<tr>
<td>B</td>
<td>80-90</td>
</tr>
<tr>
<td>C</td>
<td>70-80</td>
</tr>
<tr>
<td>D</td>
<td>60-70</td>
</tr>
<tr>
<td>F</td>
<td>&lt;60</td>
</tr>
</tbody>
</table>

Depending on the performance of each section as a whole, adjustments may be implemented consistently across the exam scores for the entire section. This adjustment, at the instructor’s sole discretion, is commonly called a “curve.”

Each student must take the exams with the student’s own registered section.

Class rule infractions, such as academic integrity violations and class disruptions, will incur penalties based on the seriousness of the offence. At the instructor’s sole discretion, *percentage points contributing to the overall class letter grade may be deducted for class rule infractions.* These deductions have the potential to lower a student’s letter grade or even cause the student to fail the course. In general, infractions will incur a reduction of the overall score by two percentage points per occurrence, although the amount may be adjusted at the instructor’s sole discretion. Other potential penalties include reporting of the incident to the Office of Community Standards, and disallowing in-person class attendance.

Make-up Exams
There will be NO make-up of exams or quizzes unless the instructor has been notified in advance, and then only under extenuating and verifiable circumstances as determined by the instructor, whose decision is final. Each student must take the exams with the student’s own registered section.

Grade Grievances
Any appeal of a grade in this course must follow the procedures and deadlines for grade related grievances as published in the current University Catalog.
Course Schedule

As the instructors for this course, we reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

—Linda S. Barasch and Mary E. Koone

<table>
<thead>
<tr>
<th>Course Schedule</th>
<th>Topics</th>
<th>Book Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thu, Aug 27</td>
<td>Introduction and review</td>
<td>0.1-0.4</td>
</tr>
<tr>
<td>Tue, Sep 1</td>
<td>Proofs and countability</td>
<td>4.2</td>
</tr>
<tr>
<td>Thu, Sep 3</td>
<td>Finite Automata</td>
<td>1.1</td>
</tr>
<tr>
<td>Tue, Sep 8</td>
<td>Finite Automata</td>
<td>1.1, 1.2</td>
</tr>
<tr>
<td>Thu, Sep 10</td>
<td>Regular Ops and Nondeterminism</td>
<td>1.2</td>
</tr>
<tr>
<td>Tue, Sep 15</td>
<td>Nondeterminism and regular expressions</td>
<td>1.3</td>
</tr>
<tr>
<td>Thu, Sep 17</td>
<td>Equivalence of Regular Expressions and FSA</td>
<td>1.3</td>
</tr>
<tr>
<td>Tue, Sep 22</td>
<td>Closure and the Pumping Lemma</td>
<td>1.1, 1.4</td>
</tr>
<tr>
<td>Thu, Sep 24</td>
<td>Pumping Lemma</td>
<td>1.4</td>
</tr>
<tr>
<td>Tue, Sep 29</td>
<td>State Minimization</td>
<td>supplement</td>
</tr>
<tr>
<td>Thu, Oct 1</td>
<td>EXAM One</td>
<td></td>
</tr>
<tr>
<td>Tue, Oct 6</td>
<td>Context free grammars</td>
<td>2.1</td>
</tr>
<tr>
<td>Thu, Oct 8</td>
<td>Context free grammars and ambiguity</td>
<td>2.1</td>
</tr>
<tr>
<td>Tue, Oct</td>
<td>Chomsky Normal Form</td>
<td>2.1</td>
</tr>
<tr>
<td>Thu, Oct 15</td>
<td>Pushdown automata</td>
<td>2.2</td>
</tr>
<tr>
<td>Tue, Oct 20</td>
<td>Pushdown Automata and pumping lemma</td>
<td>2.3</td>
</tr>
<tr>
<td>Thu, Oct 22</td>
<td>Pumping Lemma (PDA)</td>
<td>2.3</td>
</tr>
<tr>
<td>Tue, Oct 27</td>
<td>Turing Machines</td>
<td>3.1</td>
</tr>
<tr>
<td>Thu, Oct 29</td>
<td>Turing Machines and variants</td>
<td>3.2</td>
</tr>
<tr>
<td>Tue, Nov 3</td>
<td>Variants of Turing Machines</td>
<td>3.2, 3.3</td>
</tr>
<tr>
<td>Thu, Nov 5</td>
<td>EXAM Two</td>
<td></td>
</tr>
<tr>
<td>Tue, Nov 10</td>
<td>Decidable languages</td>
<td>4.1</td>
</tr>
<tr>
<td>Thu, Nov 12</td>
<td>Halting problem</td>
<td>4.2</td>
</tr>
<tr>
<td>Tue, Nov 17</td>
<td>Time complexity</td>
<td>7.1</td>
</tr>
<tr>
<td>Thu, Nov 19</td>
<td>Class P</td>
<td>7.2</td>
</tr>
<tr>
<td>Tue, Nov 21</td>
<td>Classic Problems</td>
<td>7.2, 7.3, 7.5</td>
</tr>
</tbody>
</table>

After Thanksgiving Break, all class activities will be remote, with no in-person component.

<table>
<thead>
<tr>
<th>Course Schedule</th>
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<th>Book Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tue, Dec 1</td>
<td>Class NP and NP-complete</td>
<td>7.3, 7.4</td>
</tr>
<tr>
<td>Thu, Dec 3</td>
<td>Reductions</td>
<td>7.4, 7.5</td>
</tr>
<tr>
<td>Tue, Dec 8</td>
<td>Reductions</td>
<td>7.4, 7.5</td>
</tr>
<tr>
<td>Thu, Dec 10</td>
<td>Final Exam CSE 3315-001, 002, 004</td>
<td></td>
</tr>
<tr>
<td>Thu, Dec 15</td>
<td>Final Exam CSE 3315-003</td>
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</tbody>
</table>

Final exams will be administered according to the University published schedule.

Institution Information

UTA students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the
Institutional Information page (https://resources.uta.edu/provost/course-related-info/institutionalpolicies.php) which includes the following policies among others:

- Drop Policy
- Disability Accommodations
- Title IX Policy
- Academic Integrity
- Student Feedback Survey
- Final Exam Schedule

Additional Information

**Required protective actions**
The absence of hard scientific evidence in the face of a novel situation often creates a power vacuum and a struggle to promote various theories and opinions, especially when a community must work together against a threatening situation. We highly value freedom. Each student in the class is presumed to have voluntarily requested to participate in the class for the purpose of achieving the student learning outcomes. Any activity that disrupts the class, including the debate, protest, or demonstration of matters unrelated to course content is considered a violation of the rights of the class members to achieve the student learning outcomes. Disruption of the learning environment is a serious class infraction, and penalties, including downward grade adjustments as described in Grading Information, will be imposed if a student is informed that an activity, or refusal to comply with a class policy, is disruptive and that student continues to disrupt the class. Extenuating circumstances such as special needs will be considered on an individual basis IF brought to the attention of the instructor at least 24 hours before class time.

1. Facemask
2. Distanced seating
3. Minimal physical contact
4. Sanitation of personal surfaces

*Facemask:* Current research shows that an individual may be contagious without showing any symptoms. All persons are therefore required to act as if infected, and avoid passing microbes to others. A facemask that covers the nose and mouth is an essential element in these precautions. Ordinary exhalation is known to distribute airborne pathogens, and facemasks are known to reduce this distribution, even if they are not of surgical quality. Students who disagree with this analysis are still required to cover nose and mouth while in the classroom or building. Students who attend class with nose and/or mouth uncovered are required to remedy the situation or leave, and remaining in class without a facemask is a classroom disruption.

*Distanced Seating:* We expect that classrooms will be modified to designate seating as ‘available’ or ‘not available’ so that empty seats will provide the spacing needed to achieve the recommended social distancing. Students are expected to occupy available seating only. Sitting in a seat not marked as available is a classroom infraction and will be treated accordingly.

*Minimal Physical Contact:* Seating must be filled from the middle out, or from one edge to the other. In other words, the available seat you choose must not have an empty available seat between yourself and another student. This allows the classroom to fill without anyone passing close to a seated student to get by into an available space. Sharing supplies such as pencils or erasers is discouraged. Please make sure you bring the supplies you will need for each class.

*Surface Sanitation:* The University will provide cleaning materials in every classroom. Students are expected to enter the classroom as soon as the previous class has cleared the room, in an orderly
manner, using the provided materials to sanitize desk and seating areas as they sit, and efficiently passing the materials between students. Arriving late to class is disruptive.

**Classroom exit procedure**
University guidelines instruct us to exit the classroom as soon as possible once the lecture is finished. Students may expect to receive the homework assignment at or before the last two scheduled minutes of class, and should be prepared to note it immediately. When the time for giving the assignment arrives, students are encouraged to remind the instructor, because class must end promptly. Immediately following the giving of the assignment, students nearest the end of the row must immediately rise and exit the room. Gather possessions ahead of time. Once the end of the row is clear, the next student must exit immediately. Please avoid discussions while exiting the room. It is better to have discussions outside the building. Questions to the instructor must be posed during class, or office hours, or by appointment, or remote communications. The instructor is not available for any communication at all inside the classroom once class is dismissed. The classroom should be empty within 30 seconds of class dismissal. Longer exit times may require valuable class time to be used for exit practice.

**Sanitization prior to class**
The University will provide cleaning materials in every classroom. Students are expected to enter the classroom as soon as the previous class has cleared the room, in an orderly manner, using the provided materials to sanitize desk and seating areas as they sit, efficiently passing the materials between students as needed.

**Mandatory Face Covering Policy**
All students and instructional staff are required to wear facial coverings while they are on campus, inside buildings and classrooms. Students that fail to comply with the facial covering requirement will be asked to leave the class session, and refusal will incur further disciplinary action as described in the grading information section. If students need masks, they may obtain them at the Central Library, the E.H. Hereford University Center’s front desk or in their department. Students who refuse to wear a facial covering in class will be asked to leave the session by the instructor, and, if the student refuses to leave, they may be reported to UTA’s Office of Student Conduct.

**Emergency Exit Procedures**
Should we experience an emergency event that requires evacuation of the building, students should exit the room and move toward the nearest exit. Exits are located at the front and back of the room, on the east side. The east side of the room on the right hand side for seated students. The back exit provides direct access to the outside of the building, but stairs must be negotiated to use this exit. The front exit provides access to the atrium, an outside door is directly to the right of the front classroom exit. When exiting the building during an emergency, do not take an elevator but use the stairwells instead. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Students are also encouraged to subscribe to the MavAlert system that will send information in case of an emergency to their cell phones or email accounts. Anyone can subscribe at [Emergency Communication System](https://www.uta.edu/ideas/). Any student needs assistance can email resources@uta.edu.

**Student Success Programs**
UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring by appointment, drop-in tutoring, etutoring, supplemental instruction, mentoring (time management, study skills, etc.), success coaching, TRIO Student Support Services, and student success workshops. For additional information, please email resources@uta.edu, or view the Maverick Resources website.

The IDEAS Center ([https://www.uta.edu/ideas/](https://www.uta.edu/ideas/)) (2nd Floor of Central Library) offers FREE tutoring and mentoring to all students with a focus on transfer students, sophomores, veterans and others undergoing
a transition to UT Arlington. Students can drop in or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

The Library’s 2nd floor Academic Plaza (http://library.uta.edu/academic-plaza) offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library’s hours of operation.

Emergency Phone Numbers

In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911. The non-emergency number is 817-272-3381

Library Information

Research or General Library Help
Ask for Help

- Academic Plaza Consultation Services (library.uta.edu/academic-plaza)
- Ask Us (ask.uta.edu/)
- Research Coaches (http://libguides.uta.edu/researchcoach) Resources
- Library Tutorials (library.uta.edu/how-to)
- Subject and Course Research Guides (libguides.uta.edu)
- Librarians by Subject (library.uta.edu/subject-librarians)
- A to Z List of Library Databases (libguides.uta.edu/az.php)
- Course Reserves (https://uta.summon.serialssolutions.com/#!/course_reserves)

- Study Room Reservations (openroom.uta.edu/)