CSE 2315: Discrete Structures
Spring 2026

Instructor Information

Instructor
Vamsikrishna Gopikrishna, Ph.D.

Office Number
ERB 553

Email Address and TEAMS ID
vamsikrishna.gopikrishna@uta.edu

Website
https://crystal.uta.edu/~gopikrishnav/

Faculty Profile
https://mentis.uta.edu/explore/profile/vamsikrishna-gopikrishna

Office Hours
  - Timings: **Wednesday (or Monday): 3:00 PM – 4:30 PM**
  - Location: In-Person in my office (ERB 553) or via TEAMS meeting
    (Note: Priority for In-Person students)

If you are unable to meet at these times, please email the instructor to set up an alternate meeting time.

Course Information

Section Information
  - CSE 2315 004

Time and Place of Class Meetings
Class meetings for all sections will be On Campus
  - **CSE 2315 003**: NH 203 – **Tuesday/Thursday 2:00 PM – 3:20 PM**

Course Webpage
  - http://crystal.uta.edu/~gopikrishnav/classes/2026/spring/2315/
  - Course slides, Homework Assignments, Solutions, and any other supplementary material will be posted on: Canvas

Description of Course Content
This course covers Propositional and predicate logic, mathematical proof techniques, sets, combinatorics, functions and relations, graphs, and graph algorithms.

Student Learning Outcomes
Students successfully completing this course will:
- Have a clear understanding of selected fundamental formal theories and discrete mathematical concepts employed in problem abstraction and representation needed in the study of modern computer science, computer engineering and software engineering.
- Achieve familiarity and ease in working with mathematical notation and concepts.
- Be able to understand and employ proof techniques, including domain-specific, mathematical induction and proof by contradiction, and be able to decide what the appropriate technique in each situation is.

Required Textbooks and Other Course Materials
Judith L. Gersting. Mathematical Structures for Computer Science. W.H. Freeman and Company, New York, NY, 7th edition, 2014. Note that if you choose to use an earlier edition, it's your responsibility to identify any differences in the editions.

Description of Assignments
There will be several homework assignments in this course. All homework submissions must be submitted via Canvas (no other methods of submission will be accepted). If you find yourself in an emergency and cannot deliver homework on time, immediately inform the instructor. Also, while working with other people on non-graded example problems from the textbook is a good way to help you develop your understanding and insight into the techniques of problem solving, homework solutions must be your work only. Violations of this will not be tolerated and result in severe penalties for all parties involved, in strict compliance with official UTA policy.

Late Submission policy for Assignments
The points each assignment graded out of will be provided as part of its description. Assignments submitted late will be automatically penalized, at a rate of **2% of assignment max points per hour late**. Note that the link to submit the assignment will be removed **48 hours** after the due date (**unless otherwise mentioned in class**). The submission due time (and the time the submission link will be available till) will be shown in Canvas and the course webpage. **No submissions will be accepted after the link is no longer available**. Exceptions will only be made for documented emergencies, in strict adherence to UTA policy. Computer/Network crashes, Submission of Incomplete files, Submission of Incorrect Files, Submitting at Incorrect Link are NOT acceptable excuses for late submissions. **No exceptions will be made**. To avoid problems with such crashes and last-minute problems, students are encouraged to submit as early as possible. They are also advised to ensure that their file was uploaded correctly once you finish submitting it and make a resubmission ASAP in case of any errors. You can always revise your submission till the deadline. If you are unable to work on/submit an assignment due to a valid documented reason (illness, critical family emergencies, military service obligations, observance of major religious holidays, and certain university service commitments) and provide the documentation before the deadline for the assignment, one assignment will be excused from your final grade calculation.

Description of Exams and the Final Examination

There are three exams. The first two exams will cover the first 2/3rd of the course material. There will be one Final Exam held during finals week that covers all testable material discussed in class during the semester. The exact date, time and location of the Exam will be determined by the university and posted here. All exams are closed book exams. Formula sheets may be provided for the exam (will be provided beforehand in class for review). In addition, Students are allowed 1 sheet of **handwritten** notes they can use during the exam. These notes can contain whatever information the students feel might be useful during the exam but cannot contain solutions to problems discussed during the class or from the exams or from other sources and will have to be submitted along with your exam (more details will be given in class). Students will also need a non-programmable standard or scientific calculator. No other material is allowed during the exam. **The presence of unauthorized material in your notes or in any other form will be treated as cheating and penalized as such**.

For both exams and the final, please follow all instructions regarding what information needs to be provided in your answer booklet. Missing information may be penalized. These penalties will **not** be reverted under any circumstances. All work done during the exams, or the final has to be individual work. **Violations of this will not be tolerated and result in severe penalties for all parties involved, in strict compliance with official UTA policy**.

Exams and Final Absence policy

Absence from exams may be excused, with appropriate documentation for illness, critical family emergencies, military service obligations, observance of major religious holidays, and certain university service commitments. Requests for excused absence, and documentation for such absences, must be provided either before the exam or before the 1st lecture immediately following the exam. In case of excused absence, a makeup exam covering the same material will be set up and conducted by the instructor on a date before the last day of finals week. **Even if the reason for an absence/non-attendance is valid, a request for an excused absence will be rejected if provided later than the lecture that immediately follows the exam.** An unexcused absence will be given a score of 0. **If there are two or more unexcused absences for exams, you will be given a grade of F for the course**. The dates for all the exams are subject to change. Any changes will be announced in class at least a week in advance (unless in case of an emergency or unforeseen university closure).

Absence from the final exam may be excused, with appropriate documentation, for illness, critical family emergencies, military service obligations, observance of major religious holidays, and certain university service commitments. Requests for excused absence, and documentation for such absences, must be provided before the end of Finals Week. In case of excused absence, the student will be given a grade of Incomplete (I). A makeup final will be set up and conducted by the instructor at a date at some point in Spring 2026 and the grade updated based on the score from that exam.

The exact date, time and location of the Final will be determined by the university and posted here. Students are expected to be available till the last day of finals week. No accommodation/makeup exams will be provided if the student misses the Final exam due to being unavailable before the last day of finals week due to travel plans.

Description of Lectures and Supplementary materials

Lectures will be held in person in the assigned classroom at the scheduled time. Students are expected to attend the lectures. The lectures are recorded and posted online via the Echo360 system for student review purposes. If in person lectures are not possible due to any reason, the instructor will inform the student as soon as possible. The lecture may be shifted to either synchronous online lecture (via TEAMS) or asynchronous online lecture (via video posted on Canvas).

In addition to the lectures, the instructor may provide some supplementary videos to cover topics tangential to what was covered in class or cover certain topics in more detail. It is the student's responsibility to view this material when they are posted and use the lecture sessions or office hours to clarify any questions they may have.

Academic Dishonesty Policy

If you are caught colluding or copying in the assignments, exams, or the final exam the following consequences will be applied.

Per n^{th} offence in this course:
- You will be given a score of 0 points for that assignment, exam, or final.
- Your final grade will be reduced by n letter grades (Up to a minimum of F)
- An academic integrity violation form will be filed.
  - If you agree to sign the form
    - You will be placed on disciplinary probation for 1 year and a 7-year reportable disciplinary record being created.
    - Additional violations may result in increasing sanctions up to and including suspension or expulsion.
  - If you do not agree to sign the form
    - You will be temporarily given a grade of Incomplete (I)
    - The Office of Academic Integrity will conduct a formal investigation based on evidence provided
    - Based on decision, Either the grade will be calculated with the penalty and with the consequences discussed above or grade will be calculated without penalties and no forms being filed.

This policy is not up for discussion/negotiation under any circumstances.

Technology Requirements

They will need to be able to use Canvas to view any supplementary material provided by the instructor, submit assignments and to view lecture session recordings (for review purposes).

They are also strongly recommended to get used to TEAMS to get in touch with the instructor to clarify any questions they may have.

If any exams or the final exam needs to be moved online, students will have to use the Lockdown browser with the Respondus monitoring system for the exams in which case they will need a computer with a webcam and an internet connection to take their exam.

Grading Information

Grading

You will be assigned a numerical final score based on your performance in your assignments, your exams and in your final exam.

Material	Contribution to Final score
Policy Acknowledgement	5%
Average Homework Assignment Score	30 %
Mid-Term 1	15 %
Mid-Term 2	15 %
Final Exam	30 %
Attendance	5%

Note: Not completing policy acknowledgement form submission by its due date (Weekend following Census date) may result in students not being allowed to sit for Exams and the Final.

The assignments averages will be calculated as the average of the percentage scores of each assignment:

$$Score_{avg} = \frac{\sum_{i=1}^{n} \left(w_i * \frac{Score_i}{Score_{max}} * 100 \right)}{\sum_{i=1}^{n} w_i}$$

Note: **All** assignment scores will be used in the calculation of its average. No scores will be dropped. However, your highest scoring assignment will have a weight of 1.5, your lowest will have a weight of 0.5 and all other assignments will have a weight of 1.

The numeric score is converted to a letter grade according to the following rubric.

Numerical Score	Grade
>= 90	A
>= 70 & < 90	B
>= 50 & < 70	C
>= 40 & < 50	D
Otherwise	F

For the Exams and Assignments, if any tasks were graded incorrectly (a correct answer given less than full credit) or if there is a totaling error, please contact either the TA or the instructor ASAP. Any partial credit obtained for incorrect tasks is not up for discussion/negotiation.

Note: **If there are two or more unexcused absences from exams, you will be given a grade of F for the course**.

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels. **No makeup assignments or exams will be provided for the purpose of bumping up your grade under any circumstances**.

Grade Grievances

Any appeal for a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog.

Course Schedule

Week	Date	Lec.	Topic	Chapter
1	1/13/2026	1	Course Details and Overview	
	1/15/2026	2	Statements and Symbolic Rep, Propositional Logic	1.1, 1.2
2	1/20/2026	3	Quantifiers Predicates Validity	1.3
	1/22/2026	4	Predicate Logic	1.4
3	1/27/2026	5	Proof Techniques, Induction	2.1
	1/29/2026	6	Induction	2.2
4	2/3/2026	7	Recursion and Recurrence Relations	3.1
	2/5/2026	8	Recursion and Recurrence Relations	3.2
5	2/10/2026	9	Sets	4.1
	2/12/2026		Mid-Term 1 Review	
6	2/17/2026		MID-TERM 1	
	2/19/2026	10	Boolean Algebra	8.1
7	2/24/2026	11	Counting	4.2
	2/26/2026	12	Permutations and Combinations	4.3
8	3/3/2026	13	Combinatorics Contd.	4.4
	3/5/2026	14	Relations	5.1
9	3/10/2026		SPRING BREAK - NO CLASS	
	3/12/2026		SPRING BREAK - NO CLASS	
10	3/17/2026	15	Relations and Topological Sorting	5.2
	3/19/2026	16	Relations and Functions	5.4
11	3/24/2026	17	Orders of Magnitude	5.5
	3/26/2026		Mid-Term 2 Review	
12	3/31/2026		MID-TERM 2	
	4/2/2026	18	Matrices	5.7
13	4/7/2026	19	Graphs	6.1
	4/9/2026	20	Trees	6.2
14	4/14/2026	21	Directed Graphs	7.1
	4/16/2026	22	Path problems	7.2
15	4/21/2026	23	Path problems	7.3
	4/23/2026	24	Graph Traversal	7.4
16	4/28/2026		Final Exam Review	
	4/30/2026		FINALS WEEK - Check Calendar for exact Date & Time	
17	5/5/2026		FINALS WEEK - Check Calendar for exact Date & Time	
	5/7/2026		END OF SEMESTER	

This schedule is tentative and subject to change at instructor's discretion. Changes will be announced in class. The instructor reserves the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. The exams will be held at regular class times in the same location as lectures. The Final Exam location, date and time is subject to change by the University. Please visit: https://www.uta.edu/records/calendars/final-exams.php to get the updated date, time, and location information (unless otherwise mentioned, location is the same as lectures). Students should be prepared to be available for all of Finals Week (12/3/2025 to 12/10/2025) in case of any changes to Final Exam scheduling.

Institutional 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/institutional-policies.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

Attendance
Students are expected to attend the Lectures in person. While the lectures are recorded and posted online through Echo360 system, these are only provided for review purposes and not as a substitute for attending the lectures. 5% of the final grade is set aside for attendance. This will be determined after every lecture based on what ratio of students attended that day's lecture. If less than 10% of the students turn up for the lecture, that lecture will be cancelled, and the material may not be covered later in class. If the student misses any of the lectures due to unavoidable reasons, it is the student's responsibility to look over the slides/videos/recordings to catch up with the rest of the class and clarify any questions they may have with the instructor.

Attendance Credit:

% of class in Attendance	Contribution to Final score
>= 75%	5%
< 75% & >= 50%	4%
< 50% & >= 30%	3%
< 30% & >= 20%	2%
< 20% & >= 10%	1%
< 10%	0%

At the University of Texas at Arlington, 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. As the instructor of this section, I will be following the attendance policy described above. 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 report must 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.

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, which is given in the Evacuation Route Maps given below. 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.

Evacuation Route Maps: Available [Here](#).

Students should also be 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](#).

Academic Success Center
The Academic Success Center (ASC) includes a variety of resources and services to help you maximize your learning and succeed as a student at the University of Texas at Arlington. ASC services include supplemental instruction, peer-led team learning, tutoring, mentoring and TRIO SSS. Academic Success Center services are provided at no additional cost to UTA students. For additional information visit: [Academic Success Center](#). To request disability accommodations for tutoring, please complete this [form](#).

The IDEAS Center (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 English Writing Center (411LIBR)
The Writing Center offers **FREE** tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at the [Writing Center](#) (https://uta.mywconline.com). Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see [Writing Center: OWL](#) for detailed information on all our programs and services.

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.

Librarian to Contact
Each academic unit has access to [Librarians by Academic Subject](#) that can assist students with research projects, tutorials on plagiarism and citation references as well as support with databases and course reserves.

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. Non-emergency number 817-272-3381

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