



**CSCI 5343:001, Algorithms, Spring 2026, CRN: 22804**  
Department of Computational, Engineering, and Mathematical Sciences  
College of Arts and Sciences

## Course Syllabus

<b>Class Meeting Time &amp; Place:</b>	<b>T 04:00 - 06:45 PM, STEM 279</b>
<b>Class Duration:</b>	01/20/2026 - 05/12/2026
<b>Instructor:</b>	Dr. Jeong Yang Office: STEM 211 R Tel: 210-784-2315 E-Mail: <a href="mailto:jeong.yang@tamusa.edu">jeong.yang@tamusa.edu</a> Student emails will receive a reply within two business days.
<b>Course Blackboard:</b>	<a href="https://tamusa.blackboard.com/">https://tamusa.blackboard.com/</a>
<b>Office Hours:</b>	R 11:00 am – 1:00 pm in person M 4:00 pm – 6:00 pm via Zoom or by appointment

**Catalog Course Description:** This course examines the range of algorithms for various computational problems, recognizing their strengths and weaknesses, and their suitability in particular contexts. Algorithm design techniques with time and space efficiency are a pervasive theme throughout this course. Course will cover sorting, manipulation of data structures, graphs, matrix multiplication, and pattern matching.

**Prerequisite:** A grade of “B” or better in each of: MATH 2314, CSCI 1437, CSCI 2325, and CSCI 2436 or equivalents of each of these courses as determined by the program graduate coordinator.

**Course Objectives:** The objective of the course is to provide an understanding of analyzing and designing algorithms, including the following key topics: Analyze the asymptotic performance of algorithms; Demonstrate a familiarity with major algorithms and their complexity; Apply important algorithmic design paradigms and methods of analysis; Synthesize efficient algorithms in common engineering design situations.

**Student Outcomes:** Graduates of the program will have an ability to:

1. Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.

After successful completion of this course, students will be able to:

- 1) Explain big O notation to express asymptotic upper and lower bounds on the asymptotic performance of time complexity in algorithms
- 2) Analyze the time and space complexity of different algorithms
- 3) Apply recurrence relations that describe the time complexity of recursively defined algorithms, solving elementary recurrence relations
- 4) Apply various algorithm strategies, including greedy, divide and conquer, backtracking, branch and bound, and heuristic

5) Explain how some problems have no algorithmic solution and provide examples that illustrate the concept of uncomputability.

**Required Materials:**

- **Textbook:** Introduction to Algorithms, Fourth Edition, MIT Press, 2022, by Thomas Cormen, Charles Leiserson, Ronald Rivest, and Clifford Stein, ISBN: 9780262046305.
- **Blackboard:** Connect to <http://tamusa.blackboard.com>. You will have lecture notes and other supplementary materials in Blackboard. All class communications will be through Blackboard and students should monitor this several times a day.

***Course Requirements every student must fulfill in order to succeed in course:***

1. Students should check the Course Calendar, Announcements, Lectures, and Assignments on Blackboard on a regular basis.
2. Students should keep current with all course lectures, assignments, and examinations.
3. Students should ask questions and communicate with the instructor either in class, online, off-line or during office hours.
4. For all classwork, exams, etc., if a student is completing it off-campus, then they are responsible for the availability of internet connectivity. Extensions will **not** be granted for lack of availability of internet connections.

**Grading Policy:** The final course grade will be based on your performance on the quizzes, exams, assignments and class participation using the following weights:

Quizzes	10%
Term Paper & Topic Presentation	15%
Assignments	25%
Midterm Exam	25%
Final Exam (as per University Schedule)	25%
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Total	100%

The final letter grades will be assigned as follows: Above 90%  $\Rightarrow$  A; 80 – 89%  $\Rightarrow$  B; 70 – 79%  $\Rightarrow$  C; 60 – 69%  $\Rightarrow$  D; Below 60%  $\Rightarrow$  F.

**Examinations:** There will be mandatory Midterm Exam and Final Exam (as per university schedule). Being absent for an exam will result in a grade of zero for that exam and may result in a fail grade in the course. The exams will consist of conceptual problem-solving questions, and short essay questions. The exam materials will come from lecture notes, text, and class discussions. Questions will emphasize understanding and applications of concepts and topics covered in class.

**Assignments:** There will be several assignments during the course. Individual assignment statements and due dates will be posted through Blackboard. For all assignments, ALL intermediate work of the problem solution steps MUST be shown. This includes the use of the formula, the values substituted in the formulas for problem solution, as well the intermediate steps of the arithmetic computation. The units of measurement are extremely important and MUST be shown at each stage of the computation. Considerable points will be taken off for not following these requirements.

**Make Up and Late Assignment/Exam policy:**

All assignments will have a clearly indicated due date. Late assignments will be penalized 10% per day, but no assignments will be accepted for more than three days. As a general rule, make-ups or late submissions will NOT be offered or accepted for any missed exams. Late submissions or make-ups may be accepted/administered only in extra-ordinary circumstances such as an excused official university activity, a severe illness, or a dire emergency. However, you must provide comprehensive documentation before the missed assignment/exam.

**Spring 2026 CSCI 5343:001 Class Schedule**

The provisions and information set forth in the schedule below are intended to be informational and not contractual in nature. The instructor reserves the right to amend, alter, change, delete or modify the provisions of the schedule.

Examine the range of algorithms and apply them for various computational problems, recognizing their strengths, weaknesses, and suitability in particular contexts. Algorithm design techniques with time and space efficiency.

Wk.	Dates	Chapter and Topic	Note
1	Jan 20 - Jan 25	Ch. 3 Characterizing Running Times: O-notation, $\Omega$ -notation, $\theta$ -notation, asymptotic complexity, analyzing algorithms	
2	Jan 26 - Feb 1	Ch. 4 Divide-and-Conquer: methods for solving recurrences	
3	Feb 2 - Feb 8	Ch. 6 Heapsort: heap property, heapsort algorithm, priority queues	
4	Feb 9 - Feb 15	Ch. 14 Dynamic Programming: its elements & rod cutting problem	
5	Feb 16 - Feb 22	Ch. 15 Greedy Algorithms: making greedy choices, elements of greedy strategy, knapsack problem, Huffman codes	○ Quizzes ○ Assignments ○ Mar 9-14: Spring Break
6	Feb 23 - Mar 1	Ch. 18 B-Trees: Definition and operations on B-Trees	
7	Mar 2 - Mar 8	<b>Mid-term Exam: Thursday, March 5</b>	
8	Mar 16 - Mar 22	Ch. 20 Graph Algorithms: Graphs representations, BFS, DFS	
9	Mar 23 - Mar 29	Ch. 21 Minimum Spanning Trees: growing a minimum spanning tree, Kruskal's & Prim's algorithms,	
10	Mar 30 - Apr 5	Ch. 22 Single-Source Shortest Paths: Single-source shortest paths in directed acyclic graphs, Dijkstra's & Bellman-Ford algorithms	
11	Apr 6 - Apr 12	Ch. 35 Approximation Algorithms: Traveling Salesman Problem (TSP), Hamiltonian Cycle	
12	Apr 13 - Apr 19	Ch. 31 Num.-Theoretic Algorithm: RSA pub-key cryptosystem	○ Quizzes ○ Assignments ○ April 21: Presentation
13	Apr 20 - Apr 26	<b>Final Exam: Tuesday, May 12, at 4 pm – 5:50 pm</b>	○ May 4: Last day ○ May 5: Study day
14	Apr 27- May 3		
15	May 4 - May 10		

**Use of Generative AI Permitted Under Some Circumstances or With Explicit Permission**

There are situations and contexts within this course where you may be asked to use artificial intelligence (AI) tools to explore how they can be used. Outside of those circumstances, you should not use AI tools to generate content (text, video, audio, images) that will end up in any student work (assignments, activities, discussion responses, etc.) that is part of your evaluation in this course. Any student work submitted using AI tools should clearly indicate with attribution what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, students should reach out to their instructor for clarification before submitting work for grading. Use of AI-generated content without the instructor's permission and/or proper attribution in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

## IMPORTANT POLICIES AND RESOURCES

**University Email Policy and Course Communications:** All correspondence between professors and students must occur via University email accounts. You must have your Jaguar email account ready and working. If it is not working, contact the help desk at [helpdesk@tamusa.edu](mailto:helpdesk@tamusa.edu) or at 210-784-HELP (4357). If you don't hear back within 48 hours, contact them again. They have many requests during the first part of the semester, so you may need to follow up with them.

**Academic Accommodations for Individuals with Disabilities:** Texas A&M University-San Antonio is committed to providing all students with reasonable access to learning opportunities and accommodations in accordance with The Americans with Disabilities Act, as amended, and Section 504 of the Rehabilitation Act. If you experience barriers to your education due to a disability or think you may have a disability, Disability Support Services is located in the Central Academic Building, Suite 210. You can also contact us via phone at (210) 784-1335, visit us at the [website](#) or email us at [dss@tamusa.edu](mailto:dss@tamusa.edu). Disabilities may include, but are not limited to, attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their academic accommodations with Disability Support Services and their instructors as soon as possible.

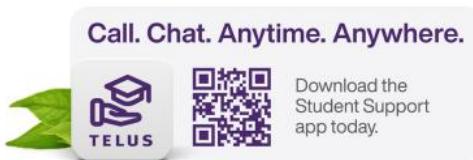
**Academic Learning Center:** All currently enrolled students at Texas A&M University-San Antonio can utilize the Academic Learning Center for subject-area tutoring. The Academic Learning Center provides free course-based tutoring to all currently enrolled students at Texas A&M University-San Antonio. Students wishing to work with a tutor can make appointments through the Brainfuse online tutoring platform. Brainfuse can be accessed in the *Tools* section of Blackboard. You can contact the Academic Learning Center by emailing [tutoring@tamusa.edu](mailto:tutoring@tamusa.edu), calling (210) 784-1307, or visiting the Central Academic Building, room 202. Online tutoring is also available for after hours and weekend assistance. While tutoring hours may change based on tutor schedules and availability, the current tutoring hours for MATH in the ALC are as follows:

	<b>Appointments available</b>	<b>Walk in Tutoring – No appointment needed</b>
MONDAY	8 am – 6 pm	9 am – 5 pm
TUESDAY	8 am – 6 pm	9 am – 5 pm
WEDNESDAY	8 am – 6 pm	9 am – 5 pm
THURSDAY	8 am – 6 pm	9 am – 5 pm
FRIDAY	8 am – 5 pm	11 am – 4 pm

**Counseling/Mental Health Resources:** As a college student, there may be times when personal stressors interfere with your academic performance and negatively impact your daily functioning. If you are experiencing emotional difficulties or mental health concerns, support is available to you through the Student Counseling Center (SCC). To schedule an appointment, visit our website, call 210-784-1331 or visit Madla 120 between the hours of 8:00 AM and 5:00 PM.

All mental health services provided by the SCC are free and confidential (as the law allows). The Student Counseling Center provides brief individual and group therapy, crisis intervention, consultation, case management, and prevention services. *Crisis support is available 24/7/365 by calling the SCC at 210-784-1331 or through the TELUS student support App.*

The TELUS Student Support App provides a variety of mental health resources to including 24/7/365 support for in the moment distress, crisis support, an anonymous peer-to-peer support network, mental health screenings, podcasts, and articles to improve your mental wellbeing.



**Emergency Preparedness:** JagE Alert is Texas A&M University-San Antonio's mass notification system. In the event of an emergency, such as inclement weather, students, staff and faculty, who are registered, will have the option to receive a text message, email with instructions and updates. To register or update your information visit: <https://tamusa.bbcportal.com/>. More information about Emergency Operations Plan and the Emergency Action Plan can be found [here](#). Download the SafeZone App (<https://safezoneapp.com/>) for emergencies or call (210) 784-1911. Non-Emergency (210) 784-1900.

**Financial Aid and Verification of Attendance:** According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds based on Title IV eligibility criteria which include class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended by the published Census Date (the first week of class). Any student receiving federal financial aid who does not attend prior to the published Census Date (the first week of class) will have their aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of their federal aid.

**Jaguar Writing, Language, and Digital Composing Center (WLDCC):** The Jaguar Writing Center provides writing support to graduate and undergraduate students in all three colleges as well as faculty and staff. Writing tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. Our language tutors support students enrolled in Spanish courses and students composing in Spanish for any assignment. Our digital studio tutors support students working on digital projects such as eportfolios, class presentations, or other digital multimedia projects. The Writing Center offers face-to-face, synchronous online, and asynchronous digital appointments. Students can schedule appointments with the Writing Center in JagWire under the Student Services tab. Click on "Writing, Language, and Digital Composing Center" to make your appointment. Students wanting to work in realtime with a tutor can schedule an "Online Appointment." Students wishing to receive asynchronous, written feedback from a tutor can schedule an "eTutoring" appointment. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our [website](#). The Writing Center can also be reached by emailing [writingcenter@tamusa.edu](mailto:writingcenter@tamusa.edu).

**Meeting Basic Needs:** Any student who has difficulty affording groceries or accessing sufficient food to eat every day or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to submit a [CARE report](#) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to direct you to available resources. A food pantry is available on campus; click [here](#) for hours and contact information.

**Military Affairs:** Veterans and active-duty military personnel are welcomed and encouraged to visit the Office of Military Affairs for any question involving federal or state VA Education Benefits. Visit the Patriots' Casa building, room 202, or to contact the Office of Military Affairs with any questions at [military.va@tamusa.edu](mailto:military.va@tamusa.edu) or (210)784-1397.

**Religious Observances:** Texas A&M University-San Antonio recognizes the wide variety of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or course work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes.

**The Six-Drop Rule:** Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student's GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as "F" grades and will impact the student's GPA.

**Statement of Harassment and Discrimination:** Texas A&M University-San Antonio is committed to the fundamental principles of academic freedom, equal opportunity, and human dignity. To fulfill its multiple missions as an institution of higher learning, A&M-San Antonio encourages a climate that values and nurtures collegiality and the uniqueness of the individual on our campus and within our state, nation, and world. All decisions and actions involving students and employees are to be based on applicable law and individual merit. Texas A&M University-San Antonio, in accordance with applicable federal and state law, prohibits discrimination, including harassment, on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, or pregnancy/parenting status. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the University's Civil Rights Officer at 210-784-2061 or [titleix@tamusa.edu](mailto:titleix@tamusa.edu).

Texas A&M University-San Antonio faculty are committed to providing a safe learning environment for all students and for the university as a whole. If you have experienced any form of sex discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking based on sex, know that help and support are available. A&M-San Antonio's Title IX Coordinator can support those impacted by such conduct in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The university strongly encourages all students to report any such incidents to the Title IX Coordinator. Please be aware that all A&M-San Antonio employees (other than those designated as confidential resources such as counselors and trained victim advocates) are required to report information about such discrimination and harassment to the university. This means that if you tell a faculty member about a situation of sexual harassment, sexual violence, or other related sex-based misconduct, the faculty member must share that information with the university's Title IX Coordinator ([titleix@tamusa.edu](mailto:titleix@tamusa.edu), 210-784-2061, CAB 439K). If you wish to speak to a confidential employee who does not have this reporting requirement, you can contact the Student Counseling Center at (210) 784-1331 or visit them in Madla 120.

**Pregnant/Parenting Students:** Texas A&M-San Antonio does not require a pregnant or parenting student, solely because of that status or issues related to that status, to (1) take a leave of absence or withdraw from their degree or certificate program; (2) limit the student's studies; (3) participate in an alternative program; (4) change the student's major, degree, or certificate program; or (5) refrain from joining or cease participating in any course, activity, or program at the University. The university will provide such

reasonable accommodations to pregnant students as would be provided to a student with a temporary medical condition that are related to the health and safety of the student and the student's unborn child. These could include maintaining a safe distance from substances, areas, and activities known to be hazardous to pregnant individuals and their unborn child; excused absences because of illness or medical appointments; modified due dates for assignments; rescheduled tests/exams; taking a leave of absence; and being provided access to instructional materials and video recordings of lectures for excused absences, if these would be provided to any other student with an excused absence. Pregnant/parenting students are encouraged to contact the Title IX Coordinator with any questions or concerns related to their status ([titleix@tamusa.edu](mailto:titleix@tamusa.edu); 210-784-2061; CAB 439K).

Texas A&M-San Antonio has also designated the Title IX Coordinator as the liaison officer for current or incoming students who are the parent or guardian of a child younger than 18 years of age. The Title IX Coordinator can provide students with information regarding support services and other resources. Young Jaguars can support parenting students with daycare if students meet this criteria: (1) must be enrolled in classes at Texas A&M-San Antonio in the current semester, (2) must be Pell eligible or a single parent, (3) child(ren) must be aged 3 to 12-years-old, and (4) child(ren) must be enrolled in Pre-K-3 through 6th grade. For more information, please contact Young Jaguars at [youngjaguars@tamusa.edu](mailto:youngjaguars@tamusa.edu) or call (210) 784-2636.

**Students' Rights and Responsibilities:** The following statement of students' rights and responsibilities is intended to reflect the philosophical base upon which University Student Rules are built. This philosophy acknowledges the existence of both rights and responsibilities, which is inherent to an individual not only as a student at Texas A&M University-San Antonio but also as a citizen of this country.

### **Students' Rights**

1. A student shall have the right to participate in a free exchange of ideas, and there shall be no University rule or administrative rule that in any way abridges the rights of freedom of speech, expression, petition and peaceful assembly as set forth in the U.S. Constitution.
2. Each student shall have the right to participate in all areas and activities of the University, free from any form of discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, and pregnancy/parenting or veteran status in accordance with applicable federal and state laws.
3. A student has the right to personal privacy except as otherwise provided by law, and this will be observed by students and University authorities alike.
4. Each student subject to disciplinary action arising from violations of university student rules shall be assured a fundamentally fair process.

### **Students' Responsibilities**

1. A student has the responsibility to respect the rights and property of others, including other students, the faculty, and administration.
2. A student has the responsibility to be fully acquainted with the published University Student Rules found in the Student Handbook, [Student Code of Conduct](#), on our website, and University Catalog, and to comply with them, as well as with federal, state, and local laws.
3. A student has the responsibility to recognize that student actions reflect upon the individuals involved and upon the entire University community.
4. A student has the responsibility to recognize the University's obligation to provide a safe environment for learning.

5. A student has the responsibility to check their university email for any updates or official university notifications.

We expect that students will behave in a manner that is dignified, respectful, and courteous to all people, regardless of sex, ethnic/racial origin, religious background, or disability. Conduct that infringes on the rights of another individual will not be tolerated.

Students are expected to exhibit a high level of honesty and integrity in their pursuit of higher education. Students engaging in an act that violates the standards of academic integrity will find themselves facing academic and/or disciplinary sanctions. Academic misconduct is any act, or attempt, which gives an unfair advantage to the student. Additionally, any behavior specifically prohibited by a faculty member in the course syllabus or class discussion may be considered as academic misconduct. For more information on academic misconduct policies and procedures please review the [Student Code of Conduct](#) or visit the resources available in the [OSRR website](#)

#### **Important Spring 2026 Dates:**

<b>Dates</b>	<b>Event</b>
January 13	Tuition & Fee Payments deadline
January 19	Martin Luther King, Jr. – No Classes
January 20	First day of class
February 4	Census date
February 23-March 6	Midterm grading period
March 9-March 14	Spring Break
April 3	Study Day – No classes
April 17	Last day to drop with an automatic “W”
May 1	Last day to drop a course or withdraw from the University
May 4	Last day of classes
May 5	Study Day – No classes
May 6-May 12	Final exams
May 19	Commencement

*The complete [academic calendar](#) is available online*