



TEXAS A&M UNIVERSITY
SAN ANTONIO

CSCI 3366-001 Programming Languages, Fall 2024, CRN: 11214
The Department of Computational, Engineering, and Mathematical Sciences
College of Arts and Sciences

Course Syllabus

Class Meeting Time and Place: TR 12:30 - 13:45 CDT, SciTech-242

Class Duration: 8/26/2024 - 12/13/2024

Instructor: Dr. Md Tamjid Hossain, CISSP, PhD
Office: SciTech 211J
Tel: 775-200-3959
E-Mail: mhossain@tamusa.edu
Student emails will receive a reply within two business days.

Course Website: <https://tamusa.blackboard.com/>

Office Hours: Tue (in-person/online) 14:00 - 16:00 CDT or by appointment.
Thu (online) 14:00 - 16:00 CDT or by appointment.

Catalog Course Description: This course covers different programming languages paradigms, formal definition of programming languages including specification of syntax and semantics, precedence, infix, prefix and postfix notation, list processing, string manipulation, data description and simulation languages, run-time representation of program and data structures.

Course Objectives: The objective of this course is to provide students with a broad understanding of the paradigms of programming languages currently used in the majority of software projects. This includes language design criteria, three major language paradigms, their syntax and semantics, and data types and type checking.

Prerequisites: MATH 1314, CSCI 1436 (or CSCI 1136 and 1336), CSCI 2322, CSCI 1437, CSCI 2325. Students who do not meet the pre-requisites must contact the instructor immediately.

ABET Assessment: The Department of Computing and Cyber Security is in the planning process of applying for ABET accreditation for its BS in computer science program for which this course is a core course. As part of that process, students will be assessed on program level outcomes based on course outcomes from this course, and hence students must follow the necessary rigor to ensure mastery of the above course outcomes. For this course the following Program outcomes will be assessed:

Apply computer science theory and software development fundamentals to produce computing-based solutions.

Learning Objectives: Upon completion of this course, the student will be able to:

- Understand programming language design criteria
- Classify major programming language paradigms
- Develop small programs in some programming language paradigms
- Introduction to Python programming languages
- Explore the process of scanning lexical structures
- Develop a syntax analyzer for a small programming language
- Specify the semantics of a programming language

Recommended Course Materials:

- Programming Languages: Principles and Practice, 3rd Edition, Cengage by Kenneth C. Louden and Kenneth A. Lambert., ISBN-13: 978-1-111-52941-3, ISBN-10: 1-111-52941-8
- Programming Languages: Concepts and Implementation, Jones & Bartlett Learning by Saverio Perugini, ISBN-10: 1-111-52941-8

Required Materials:

- **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.
- **Computer Hardware:** In order to participate in the tutoring sessions, you will need a computer with an internet connection, a microphone and speakers/headphones.
- **Time Expectation for coursework:** You are expected to spend 4-8 hours per week for the course. Based on the background, some student may require more time. Time spent may be longer when assignment/exams are due.

Other Recommended / Reading Materials: Additional reading materials are available on the course website as recommended by the instructor.

REFERNCE MATERIALS:

- <https://www.online-python.com/>
- DrRacket, Scheme implementation <https://racket-lang.org/>
- Repl.it Scheme Online IDE <https://repl.it/repls/MintySatisfiedCodeview#main.scm>
- Swi Prolog IDE <https://www.swi-prolog.org/download/devel>
- Swi Prolog Online <https://swish.swi-prolog.org/>

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

1. Students should check the Course Calendar, Announcements, and Messages (e-mail) systems in Blackboard on a regular basis.
2. Students should keep current with all course assignments, quizzes, and examinations.
3. If the course uses remote proctoring for exams, students must schedule their exam early in the semester.
4. Students should ask questions and communicate with the instructor either in class, online, off-line or during office hours.

5. For all classwork, exams, quizzes etc., if a student is completing it off-campus, then they are responsible for availability of internet connectivity. Extensions will **not** be granted for lack of availability of internet connections.
6. Students should remember that online and hybrid courses assume greater responsibility and independent learning skills by the student for their own learning outcomes.
7. Students should keep current on class recordings, if not attending the live class (either in person or online).
8. The instructor reserves the right to reflect attendance in the final grade.
9. The presentations do not include everything said in class because that makes for a boring presentation, so expect to take notes in class.
10. It is strongly encouraged to read the textbook before class so that the lecture is not the first time that you are seeing a concept.
11. There could be online class sessions depending on the circumstances. The notifications of any online class session (if it is required for any unavoidable reasons) would be given by the instructor earlier through Announcement and Message (email) system. Students are expected to attend the online session at the given time. If a student is unable to attend a session, instructor will make the recording of the session available for the student to view. All materials will be made available through Blackboard or through online links.

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

Project Presentation/Report	10%
Attendance	10%
Assignments	30%
Midterm Exam	20%
Final Exam (as per University Schedule)	30%
Total	100%

The final letter grades will be assigned as follows:

90 – 100	A;
80 – 89	B;
70 – 79%	C;
60 – 69%	D;
59 and below	F.

This course has a requirement of a grade of C as a minimal grade for satisfactory completion of the course.

Examinations: There will be mandatory **one mid-term exam** and **one 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, the text, and class discussions. Questions will emphasize understanding and applications of concepts and topics covered in class.

Broader Use of Generative AI Permitted Within Guidelines:

Use of artificial intelligence (AI) tools, including ChatGPT, is permitted in this course for students who wish to use them. To adhere to our scholarly values, students must cite any AI-generated material that informed their work (this includes in-text citations and/or use of quotations, and in your reference list). Using an AI tool to generate content without proper attribution qualifies as academic dishonesty and violates Texas A&M-San Antonio’s standards of academic integrity. If there is any change in this policy

in the future to meet the need of academic success, as determined by the University and the Instructor, the policy can be changed/modified/cancelled. In that case, the instructor will make an announcement in the Blackboards.

NOTE: Guidance for how to cite AI-generators, like ChatGPT, can be found here <https://apastyle.apa.org/blog/how-to-cite-chatgpt>

Assignments: There will be several assignments during the course. 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. The submitted assignment report **MUST** be readable and clear. The students are advised to follow the order of the questions while answering and submitting the report to make the grading system easy. Considerable points will be taken off for not following these requirements. All assignments will have a clearly indicated due date.

Submitted Work Naming Convention:

Save and submit all your work as Microsoft Word (only in PDF when specified). Make sure to save your files using the convention **FIRSTNAME_LASTNAME_COURSE ABBREVIATION_SEMESTER AND YEAR_ACTIVITY NAME OR NUMBER** Or as specified in the assignment instructions.

Example: **Luke_Cage_CSCI4323_FA24_FinalResearchReport.docx or .pdf**

Communication With Professor:

I will be instructing a large student population, and I filter my emails based on the class number. When you need to reach out to me via email: you must include the complete Class Number (e.g., CISA4323), followed by your complete name, subject of email (e.g., Assignment 1), (e.g., Bridget Jones), and followed by your student number (**e.g., No1234567**) in the SUBJECT line of the email. For example: **(Subject: CSCI4323 Assignment 1 Bridget Jones No1234567)**. Doing so will allow a more rapid response to your questions.

Make up and Late Assignment/Exam policy:

All assignments will have a clearly indicated due date. **Late homework and tests get 50% of normal graded value and are accepted up to 24 hours after the due date and time. For example, if you would have gotten a 90 on the homework, it gets 45 when it is late. Submissions are not acceptable after the 24 hours of the due date and time and the students will get ZERO (0) for the assignment (except for unavoidable and pre-authorized circumstances).** As a general rule, no make-ups will be accepted for any missed assignments/exams. Make-ups and Late submission 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 either before or within a few days of the missed assignments/exams. Clear and advance communication with the instructor is strongly recommended.

Class conduct and civility code: Everyone in class is expected to follow all rules in the student handbook, as well as common courtesy during classroom lectures and discussions in class and online, including the following:

1. Attendance may be taken by an appropriate method by the instructor.
2. It is the students' responsibility to obtain and be able to use the required materials and software for this class.
3. Student must retain copies of all assignments and graded work for verification purposes and provide it to the instructor, if necessary. Keep own copies of all computer files and e-mails till final grade is received.
4. Talking among classmates and third parties while the instructor is lecturing is extremely disruptive and discourteous to the instructor and other students.
5. Using computers or phones (except for a valid urgent need) during class for a purpose not related to class is disruptive. All cell phones and gadgets should be turned OFF or kept SILENT.
6. For any questions about the exams and assignments, a student should contact the instructor, well in advance of the day they are due, so the instructor may have enough time to provide feedback.
7. All communications will be via e-mail communications to the Texas A&M University-San Antonio e-mail account, and students are expected to use their school provided email account. The instructor will reply to a student e-mail messages and voice messages within 2 business days (Monday-Friday).
8. All assignment submissions must be uploaded as instructed by the due date and time. Submission window may close or marked late, even if late by one second.

Anyone violating these policies may be subject to disciplinary actions.

Class attendance and Participation: A vital part of every student's education is regular attendance of class meetings (for face-to-face/hybrid classes/online synchronous classes) or regular review of class materials posted by the instructor for asynchronous classes. Any absences tend to lower the quality of a student's work and grades, and frequent or persistent absences may result in a failing grade. Students are responsible for the materials covered in class. The course covers a lot of material, and most students find at least some parts of it difficult. Class participation is highly encouraged as it makes the class more interesting and enhances the learning experience. Students are strongly encouraged to ask questions, participate in class discussions and problem solving, and visit/contact the instructor during office hours in case of questions or concerns. Good attendance and participation will be rewarded when final grades are assigned.

The course is intensive and challenging and you are expected to master the materials presented in class. The structure of the class makes your individual study and preparation outside of class extremely important and may vary considerably based on student background. However, a **minimum** of two hours of work outside the class is expected for every one hour of class period per week. Reading the assigned chapter(s) and having some familiarity with them before class will be very useful for understanding lectures.

Fall 2024 CSCI 3366 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.

Note: This course outline is subject to change as per future needs. Any changes in the outline will be announced through prior class notice (if time allows) and Blackboard.

	Date	Chapters
Week 1	Aug. 27	Syllabus, Introduction
Week 1	Aug. 29	History of Programming Languages, Abstraction
Week 2	Sep. 3	Computational Paradigm, Formal Language Definition, Language Translation
Week 2	Sep. 5	Language Design Criteria
Week 3	Sep. 10	Functional Programming
Week 3	Sep. 12	Lambda Calculus
Week 4	Sep. 17	Scheme Language
Week 4	Sep. 19	Scheme Language
Week 5	Sep. 24	Midterm Review
Week 5	Sep. 26	Midterm Exam
Week 6	Oct. 1	Logic Programming: Universal and Existential Quantifier, Inference Rules, Control Problems
Week 6	Oct. 3	Horn Clauses
Week 7	Oct. 8	Resolution, Unification
Week 7	Oct. 10	Logic Programming: Prolog
Week 8	Oct. 15	Introduction to Python: History, Syntax, Data Type, Functions
Week 8	Oct. 17	Introduction to Python: Logic, Modules, Real World Applications and Examples
Week 9	Oct. 22	Syntax: Lexical Structure, Tokens, Regular Expressions
Week 9	Oct. 24	Syntax: Context-free Grammar, BNF
Week 10	Oct. 29	Syntax: Parse Tree, Abstract Syntax Tree, Parsing Techniques
Week 10	Oct. 31	Syntax: Ambiguity, Associativity, Precedence, EBNFs, Syntax Diagrams
Week 11	Nov. 5	Semantics: Attributes, Binding, Symbol Table
Week 11	Nov. 7	Semantics: Allocation, Lifetimes, Aliases, Dangling References, Garbage
Week 12	Nov. 12	Currying and High-Order Functions, Functions and Closures
Week 12	Nov. 14	Currying and High-Order Functions, Functions and Closures (Cont'd)
Week 13	Nov. 19	Presentation (Group of 2 students, Per group 10 minutes for presentation + 2 minutes for Q&A)
Week 13	Nov. 21	Presentation (Group of 2 students, Per group 10 minutes for presentation + 2 minutes for Q&A)

Week 14	Nov. 26	Presentation (Group of 2 students, Per group 10 minutes for presentation + 2 minutes for Q&A)
Week 14	Nov. 28	Thanksgiving Holiday – No Class
Week 15	Dec. 3	Presentation (Group of 2 students, Per group 10 minutes for presentation + 2 minutes for Q&A)
Week 15	Dec. 5	Final Exam Review
Week 16	Dec. 10	12:30 – 13:45 Final Exam (time and date subject to change depending upon the university schedule, will be notified later via announcement)
Week 16	Dec. 12	

IMPORTANT POLICIES AND RESOURCES

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 <https://www.tamusa.edu/Disability-Support-Services/index.html> or email us at 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 disability-related needs with Disability Support Services and their instructors as soon as possible.

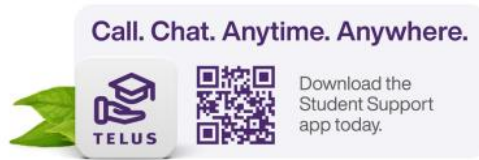
Academic Learning Center: The Academic Learning Center provides free course-based tutoring to all currently enrolled students at Texas A&M University-San Antonio. Students wishing to work with a tutor can make appointments through the Brainfuse online tutoring platform. Brainfuse can be accessed in the *Tools* section of Blackboard. You can contact the Academic Learning Center by emailing tutoring@tamusa.edu, calling (210) 784-1307, or visiting the Central Academic Building, room 202.

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, call 210-784-1331 or visit Madla 120.

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. For more information on SCC services visit tamusa.edu/studentcounseling

Crisis support is available 24/7 by calling the SCC at 210-784-1331 (after-hours select option '2').

Additionally, the TELUS Student Support App provides a variety of mental health resources to including support for in the moment distress, 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. 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: <https://www.tamusa.edu/about-us/emergency-management/>.

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 the first week of class. Any student receiving federal financial aid who does not attend 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.

Writing, Language, and Digital Composing Center: The Writing, Language, and Digital Composing Center supports graduate and undergraduate students in all three colleges as well as faculty and staff. 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. Students can schedule appointments through JagWire under the Student Services tab. Click on “Writing, Language, and Digital Composing Center” to make your appointment. The Center offers face-to-face, synchronous online, and asynchronous digital appointments. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at <https://www.tamusa.edu/academics/>.

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 referral (<https://www.tamusa.edu/university-policies/Student-Rights-and-Responsibilities/file-a-report.html>) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to direct you to available resources.

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 or (210)784-1397.

Religious Observances: Texas A&M University-San Antonio recognizes the diversity 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 within our state, nation, and world. All decisions and actions involving students and employees should 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, gender identity, gender expression, or pregnancy/parenting status. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the appropriate offices within their respective units.

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- or gender-based discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking, 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 misconduct, the faculty member must share that information with the university's Title IX Coordinator (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; 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.

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, sexual orientation, gender identity, gender expression, 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, sexual orientation, 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 (<https://www.tamusa.edu/university-policies/student-rights-and-responsibilities/documents/Student-Handbook-2022-23.pdf>) or visit the resources available in the OSRR website (<https://www.tamusa.edu/university-policies/student-rights-and-responsibilities/academic-integrity.html>).

Important Dates:

August 26	First day of class
September 2	Labor Day Holiday
November 11	Last day to drop with an automatic “W”
November 19	Last day to drop a course or withdraw from the University
November 27	Study Day – No classes
November 28-30	Thanksgiving Holiday – No classes
December 5	Last day of classes
December 6	Study Day – No classes
December 7-13	Final exams

The complete academic calendar is available online: <https://www.tamusa.edu/academics/academic-calendar/index.html>.