



Texas A&M University--San Antonio
at One University Way, San Antonio, TX 78224
Department of Sciences & Mathematics
Fall 2025

MATH 2312.004: *Pre-Calculus*
T, Th: 9:30pm – 10:45pm Sci Tech 169
Th: 8:30am – 9:20pm Sci Tech 169

Instructor: Mr. Emilio Cruz
Office: Hall 314Z
Phone: (210) 784-2247
e-mail: ecruz1@tamusa.edu
Office hours: M: 3:30pm – 4:30pm
 T: 11am – 12pm
 F: 11am – 12pm
 S: By appointment

COURSE DESCRIPTION & MATERIALS:

Catalog Description: In-depth study & applications of polynomial, rational, radical, exponential & logarithmic functions, & systems of equations using matrices. Additional topics such as sequences, series, probability, & conics may be included. This course meets the standards for the Mathematics category of courses under the core curriculum. This course meets the standards for the Mathematics category of courses under the core curriculum.

Prerequisite: Evidence of math equivalent to High School Algebra II ('C' or above) or placement.

Required Textbook: Pre-Calculus Essentials by Robert F. Blitzer, 6th Ed., with MyMathLab, Pearson Publishing, 2018, ISBN 9780134469164. (E-book package as part of course registration). Note: Students can purchase a loose-leaf version of text for a low cost if desired (check bookstore). The course ID is accessible through Blackboard.

You do not need to buy a physical textbook, you will have a copy of the electronic textbook when you buy MyMath Lab. More information will be given in class.

Calculator Policy: Scientific and graphing calculators are permitted but they must not be programmable.

NOTE: This class meets 2 times a week. Aside from the 2 ½ hours that you spend in class each

week, you should devote at least another 4 to 6 hours to studying on your own: reading the book & my lecture notes, working out homework assignments & solving extra related problems for practice, etc. You are responsible for any & all materials/topics discussed in this class.

Student Learning Outcomes: MATH 2312 helps students develop critical thinking, communication, and empirical and quantitative skills by focusing on student understanding of key mathematical concepts required for calculus readiness to include recognizing, identifying, solving, analyzing and explaining appropriately model applicable real -world situations.

Upon completion of this course, students will:

1. Demonstrate understanding and knowledge of properties of functions from graphical, tabular, symbolic, or verbal representations.
2. Identify and apply appropriate strategies for solving equations involving algebraic, transcendental, and trigonometric functions.
3. Interpret and apply graphing techniques to algebraic and transcendental functions.
4. Compute and apply the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
5. Prove and apply trigonometric identities.
6. Interpret and solve applications related to right and oblique triangles.

List of Topics: Topics to be covered include but are not limited to the following:

- Course Introduction and setup. Basic Algebra review.
- 1.1 More on Functions and Their Graphs
- Exponential Functions
- Logarithmic Functions
- Properties of Logarithms
- Exponential and Logarithmic Equations
- Exponential Growth & Decay; Modeling Data
- Angles & Radian Measure
- Trigonometric Functions: The Unit Circle
- Right Triangle Trigonometry
- Trigonometric Functions of Any Angle
- Graphs of Sine & Cosine Functions
- Graphs of Other Trigonometric Function
- Inverse Trigonometric Functions
- Verifying Trigonometric Identities
- Sum & Difference Formulas
- Double-Angle, Power-Reducing, & Half-Angle Formulas
- Trigonometric Equations
- The Law of Sines
- The Law of Cosines
- Polar Coordinates
- Graphs of Polar Equations
- Vectors
- Dot Product

The instructor reserves the right to modify/update the topics as appropriate.

COURSE WORK & GRADE DISTRIBUTION:

Participation: Active participation & cooperation in class is essential for your success as an individual student & our success as a class. **If you miss class, you are responsible for finding out what you missed on that day. You are welcome to ask questions on the topics that you missed; however, it is your responsibility to learn the material.**

Homework: Homework will be assigned after every section that is covered. Students will have at least 1 week to complete the homework. **Once the homework is due, it will not be reopened.** You can complete the assignments until 11:59pm of the due date listed. The homework may be attempted multiple times in order to increase your homework grade.

Exams: There will be three in class exams. All exams are closed books and closed notes to be completed in the classroom or at the Testing Center. **Failure to schedule your exam in a timely manner may result in the time slots being full and you will not be able to take your test- this will result in 0 for that test.** There are no make-up exams, however your final exam can replace the lowest test grade.

Final Exam: In order to pass this class, students *must* take a comprehensive final exam scheduled during Finals Week. Finals cannot be rescheduled or missed. The final exam may be used to replace your lowest regular exam grade. **The final exam must be completed by the announced due date. NO EXCEPTIONS.**

Course Evaluation:

Homework: 10%

Tests (3): 50%

Final Exam: 40%

COURSE REQUIREMENTS & EXPECTATIONS

Class Attendance: Attending class is **mandatory**. In all cases of absences and tardiness or leaving early, students will be held responsible for completion of course requirements covered in their absence. Students are expected to attend class as scheduled and be prepared to participate in discussions, in-class exercises. If you miss class, you are responsible for finding out what you missed on that day. You are welcome to ask questions on the topics that you missed; however, it is your responsibility to learn the material. You are strongly encouraged to attend all classes. In addition, if an unavoidable situation prevents you from being on time or if you must leave early, please minimize class interruption. **After 6 absences, you can be dropped for non-attendance by your instructor without further notice.**

Make-up Policy: There are no make-up for homework assignments or exams. Exams must be taken on the date specified. **No make-up exams will be given.** However, the lowest of the three regular exams may be replaced by the final exam score.

Dropping the Course: It is the student's responsibility to drop a course. The instructor may not automatically drop you, unless for attendance reasons. Please check the academic calendar webpage of TAMU-SA for the last day to drop a course or withdraw from the university. Please contact the Welcome Center at 784-1300 if you desire to drop the course.

Blackboard: Students are responsible for checking Blackboard regularly for announcements, assignments, & other support materials posted there. However, students are also responsible for all announcements & assignments which are given in the classroom. Please use my TAMUSA e-mail if you need to communicate with the instructor about the lecture.

NOTE: **There will NOT be an extra credit assignment, please DO NOT ask for it at the end of the semester. Start studying today!** You have enough time to get the grade you want. To be successful in this course, take responsibility for your learning & plan to study at least 2 hours for each class hour. Do not get behind; do not hesitate to ask for help. Make good use of the resources that are available to you, especially your book & your instructor.

Electronic Devices: **The use of phones or other electronic devices for non-class related activities is not allowed.**

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 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. 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: 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, calling (210) 784-1307, or visiting the Central Academic Building, room 202. Online tutoring is also available for after hours and weekend assistance.

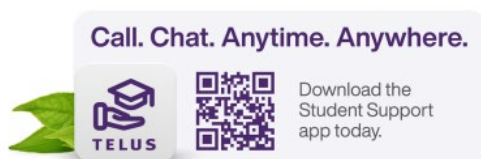
While tutoring hours may change based on tutor schedules and availability, the current tutoring hours for MATH in the ALC are as follows:

| | Appointments available | Walk in Tutoring – No appointment needed |
|-----------|-------------------------------|---|
| 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, 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) and are not part of a student's academic or university record. 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 the [website](#). *Crisis support is available 24/7 by calling the SCC at 210-784-1331 (after-hours select option '2').* The National Suicide Prevention hotline also offers a 24/7/365 hotline at 1-800-273-8255.

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 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.

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 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 on our campus and 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, 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.

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 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, 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. Young Jaguars can support parenting students with daycare if students meet this criteria: (1) must be enrolled in classes at TAMUSA 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 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, 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](#) or visit the resources available in the [OSRR website](#)

Important Dates:

| | |
|----------------|---|
| August 25 | First day of class |
| September 1 | Labor Day Holiday |
| September 2 | Last day to register |
| September 10 | Census date |
| October 6 - 17 | Midterm grading period |
| November 14 | Last day to drop with an automatic "W" |
| November 25 | Last day to drop a course or withdraw from the University |
| November 26 | Study Day – No classes |
| November 27-29 | Thanksgiving Holiday – No classes |
| December 4 | Last day of classes |
| December 5 | Study Day – No classes |
| December 6-12 | Final exams |
| December 16 | |

Commencement

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

MATH 2312.006 and MATH 2012.006 assumes that all work submitted by students will be generated by the students themselves, working individually or in groups. Students should not have another person/entity do the writing of any portion of an assignment for them, which includes hiring a person or a company to write assignments and/or using artificial intelligence (AI) tools like ChatGPT. Use of any AI-generated content in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.