

College Precalculus (MATH 2412)
Fall 2026



INSTRUCTOR CONTACT INFORMATION

Instructor: Mark Jhun Vinluan

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Office Phone: 409-617-6600

Office Location: Dr. Martin Luther King Jr. Collegiate Academy - Room 809

Office Hours: Monday to Friday, 7:15 AM - 3:00 PM

After-class Tutorials: Tuesday and Wednesday, from 3:15 PM to 4:15 PM



CREDIT: 4 units

MODE OF INSTRUCTION: Face-to-Face class

PREREQUISITE: Passed College Algebra (Math 1314) with a “C” or better

COURSE DESCRIPTION:

College Precalculus is a comprehensive course designed to prepare students for calculus by developing advanced algebraic and transcendental function skills. Students will master sophisticated mathematical concepts through conceptual understanding, problem-solving, and real-world applications.

Trigonometric Functions establishes foundational trigonometry through angle measures (degrees and radians), unit circle definitions, and graphs of trigonometric functions. Students explore periodic behavior, function transformations, and inverse trigonometric functions, emphasizing connections between algebraic, graphical, and numerical representations.

Analytic Trigonometry develops expertise in trigonometric identities and equations. Students verify and derive fundamental identities, sum and difference formulas, double-angle formulas, and product-to-sum conversions, then solve trigonometric equations both algebraically and graphically.

Applications of Trigonometric Functions translate theory into practice by modeling periodic phenomena such as oscillations and waves. Topics include right triangle trigonometry, the Law of Sines, the Law of Cosines, and bearings, enabling students to create and interpret trigonometric models for real-world problems.

Conic Sections examines circles, ellipses, parabolas, and hyperbolas in both standard and general forms. Students identify conic sections from equations, graph them, and understand their geometric properties and applications, strengthening connections between algebraic and geometric interpretations.

Systems of Equations covers solving linear and nonlinear systems using substitution, elimination, and graphical methods. Students work with multiple variables, explore matrices and determinants, and apply systems to optimization and real-world problem-solving.

Sequences and Mathematical Induction introduces arithmetic and geometric sequences, series, and summation notation. Students explore infinite series and convergence, then learn mathematical induction as a proof technique with applications to problems involving sequences and series.

COURSE OUTCOMES:

By the end of the semester, students will be able to:

1. Master trigonometric functions and their applications
2. Verify and apply trigonometric identities and solve equations
3. Model periodic phenomena and solve applied problems
4. Analyze and graph conic sections
5. Solve systems of equations using multiple strategies
6. Work with sequences, series, and mathematical induction

Core objectives:

1. **Mathematical Thinking & Problem-Solving.** Students will develop mathematical reasoning by analyzing trigonometric and algebraic problems, selecting appropriate strategies (identities, graphical methods, or systems approaches). They will apply multiple representations (algebraic equations, unit circle, graphs, tables) to understand trigonometric functions and conic sections.
2. **Critical Thinking & Analysis.** Students will analyze real-world situations (waves, navigation, projectile motion) to determine which trigonometric model or system of equations is most appropriate. They will compare solution methods for systems of equations (substitution, elimination, matrices) and evaluate their efficiency.
3. **Conceptual Understanding.** Students will connect abstract conic-section equations to geometric properties (foci, eccentricity, and asymptotes). They will build intuition for why sequences converge or diverge and how mathematical induction validates formulas.
4. **Communication & Collaboration.** Students will articulate mathematical reasoning using precise trigonometric notation, interval notation, and algebraic symbols. They will explain the connection between algebraic and graphical solutions to trigonometric equations and systems.
5. **Mathematical Modeling:** Students will construct and interpret mathematical models using functions, graphs, trigonometric, and conic relationships. They will apply these

models to represent and analyze real-world phenomena in physics, engineering, economics, and other disciplines.

REQUIRED TEXTBOOK AND MATERIALS

1. Precalculus: 10th Edition by Sullivan
2. MyMathLab Standalone Access Code
3. TI-84 Calculator
4. Chromebook
5. Graphing papers

ATTENDANCE POLICY

1. Regular attendance is expected for all scheduled class sessions, including lectures and discussions.
2. Students are expected to arrive on time for each class session.
3. Attendance will be recorded at the beginning of each class session.
4. *Excused absences* may be granted for documented medical reasons, family emergencies, or other extenuating circumstances. It is the student's responsibility to inform the instructor of such circumstances as soon as possible.
5. In the event of an anticipated absence, students are encouraged to communicate with the instructor in advance.
6. Students with *excused absences* may be eligible for make-up work, including missed assignments, quizzes, or exams. The nature of make-up work will be determined on a case-by-case basis in consultation with the instructor.
7. Excessive absences may negatively impact your grade and could result in withdrawal from the course.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the Academic Calendar. If you stop coming to class and fail to drop the course, you will earn an “F” in the course.

STUDENT CODE OF CONDUCT STATEMENT

It is your responsibility as all registered Lamar Institute of Technology students to access, read, understand, and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. It may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

COURSE EXPECTATIONS

Instructor Expectations from Students

- Students should attend all scheduled classes, arrive on time, and actively participate in discussions, group work, and problem-solving activities. Consistent engagement is essential for mastering the material.
- Students are expected to review previous lessons, complete assigned readings, and bring required materials (notebook, calculator, Chromebook, etc.) to class. Homework and assigned problems should be attempted before each session.
- All homework, quizzes, projects, and assessments must be submitted by the stated deadlines. Late submissions may be penalized unless prior arrangements are made due to valid reasons.
- Students must complete their work and avoid any form of cheating, plagiarism, or unauthorized collaboration. Violations of academic honesty will result in disciplinary action as outlined by the institution's policies.
- Students are encouraged to ask questions during class, attend office hours, and utilize tutoring services or study groups when concepts are unclear. Taking initiative is key to success in this course.
- Graphing calculators, software, or online platforms may be required or allowed in specific contexts. Students should use these tools appropriately and follow all guidelines regarding their use during assessments.
- Students are expected to contribute to a respectful, inclusive, and focused classroom atmosphere. This includes listening actively, respecting others' viewpoints, and minimizing distractions.
- Students should take ownership of their learning, monitor their progress, and persist through challenging material. A growth mindset and consistent effort are critical for achieving course goals.

GRADING SYSTEM

Final grades will be calculated according to the following criteria:

- Exams 60%
- Course Assignments 20%
- Core Assessment 20%

Exams

This course includes six (6) Chapter Tests and one Final Examination.

- The Chapter Tests will be taken through MyMathLab and will cover material from each unit or chapter.
- The Final Examination will be a **paper-and-pencil test** taken in person and will cover all topics from the entire course.

The Exams are worth 60% of your final grade and are required for all students. There are no exemptions unless approved by the instructor in exceptional cases.

Missing the Final Exam is only allowed in serious, documented situations (e.g., medical emergency). If you miss the exam, you must follow the institution's formal process to request a special exam. Approval is not guaranteed.

Course Assignments

Course assignments are divided into two parts:

1. **Task Completion:** These are written handouts or worksheets that you will complete in the classroom.
2. **MyMathLab Assignments:** These are your homework assignments and will be completed online using MyMathLab.

Course assignments are 20% of your final grade.

Core Assessment

The Core Assessment is an institutional requirement that measures what you have learned by the end of the semester. It is designed to assess your understanding of the entire course content, covering all major topics discussed throughout the term. Course assessments are 20% of your final grade.

GRADE SCALE

Numerical Grade	Letter Grade
90.00 - 100	A
80.00 - 89.99	B
70.00 - 79.99	C
60.00 - 69.00	D
0 - 59.99	F

GRADING AND REPORTING PROCEDURE

1. Teachers of record are required to post at least 1 grade in the Blackboard gradebook two days after the deadline for submission.
2. Students may submit late work, but a maximum penalty of 10 percent of the total grade will be applied for each day it is late. Teachers can exercise their discretion to reduce this penalty in the students' best interests. All work assignments must accept late work up to 2 days late. After two days, it is up to the teacher's discretion to accept late work.
3. Students participating in UIL activities may be exempt from the No Pass, No Play rule in Advanced Placement courses identified in 33.081 of the TEXAS EDUCATION CODE. The district's exemption guidelines are as follows:
 - a. The student's grade cannot be below 70 percent.
 - b. The students must have no zeros recorded in the teacher's gradebook for the corresponding grading period.

ACADEMIC DISHONESTY

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution's Academic Dishonesty Policy available in the Catalog and Handbook at <http://catalog.lit.edu/content.php?catoid=4&navoid=111#academic-dishonesty>

MATH AI POLICY

No AI tools, apps, software, etc. are to be used on any work that is scored, graded, assessed, etc. This includes all homework, exams, tests, projects, assessments, quizzes, discussions, etc. Failure to follow these guidelines (as deemed by the instructor) may be considered academic dishonesty and will be managed by instructor discretion, or for exams, the Math testing policy.

MATH TESTING POLICY

- All online Math courses will use Respondus Lockdown Browser and Monitor. This means students will be recorded when taking exams and will need a webcam and microphone.
- If a student is suspected of cheating, such as with AI use or other cheating methods, the student will be given a zero on the exam. The student will have one week of being notified to have a meeting with the instructor either face to face in the instructor's office or through an online method through such means as Microsoft Teams or Zoom. During this meeting, the student may be asked to work out problems or even the entire test in front of the instructor to adjust the student's grade.
- If the student is caught using AI or the student fails to meet with the instructor within one week of notification, or the student is unable to complete the work on the exam with the instructor present, a zero will be given for that exam or assignment, and there will be no opportunity for a redo.

DISABILITIES STATEMENT

LIT is dedicated to ensuring that all students have equal access to educational opportunities. If you require accommodations due to a documented disability, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu at the beginning of the semester. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](http://Special Populations - Lamar Institute of Technology (lit.edu)).

CELL PHONE (DISTRICT POLICY): If I see or hear a cell phone, it will be confiscated, as well as any other electronic device. All electronic devices should be OFF and in your bag, not in your pockets. This includes, but is not limited to, cords, earbuds, and smartwatches. The device will be turned in to the office once it's not in the bag.

COURSE CALENDAR (Dates and assignments subject to change with or without notice.)

Week	Topic	Assignment due date
Aug 12 - 14	Graphs 1.1 The Distance and Midpoint Formula 1.2 Graph of the Equation in Two Variables; Intercepts; Symmetry	
Aug 17 - 21	1.3 Lines 1.4 Circles 6. The Trigonometric Functions 6.1 Angles and their measures	No test in Chapter 1.
Aug 24 - 28	6.2 Trigonometric Functions: Unit Circle approach 6.3 Properties of Trigonometric Functions 6.4 Graph of Sine and Cosine Functions	
Aug 31 - Sep 4	6.5 Graph of Tangent, Cotangent, Cosecant, and Secant 7. Analytic Trigonometry 7.1 The inverse sine, cosine, and tangent functions	Chapter 6 Test due September 8, 2026

	7.2 The inverse trigonometric function (continued)	
Sep 8 - 11	7.3 Trigonometric Equations 7.4 Trigonometric Identities	
Sep 14 - 18	7.5 Sum and Difference Formulas 7.6 Double-angle and Half-angle Formulas 7.7 Product-to-Sum and Sum-to-Product Formulas	Chapter 7 Test due September 21, 2026
Sep 21 - 25	8. Applications of Trigonometry 8.1 Right Triangle Trigonometry; Applications 8.2 Law of Sines 8.3 Law of Cosines	
Sep 28 - Oct 2	8.4 Area of a Triangle 9. Polar Coordinates; Vectors 9.1 Polar Coordinates 9.2 Polar Equations and Graphs	Chapter 8 Test due October 15, 2026
Oct 5 - 8	9.3 The Complex Plane; De Moivre's Theorem	
Oct 14 - 16	9.4 Vectors 9.5 The Dot Product	
Oct 19 - 23	9.6 The Vector in Space 9.7 The Cross Product	Chapter 10 Test due October 26, 2026
Oct 26 - 30	10. Analytic Geometry 10.1 Conics (Reteach Circle) 10.2 The Parabola 10.3 The Ellipse 10.4 The Hyperbola	
Nov 2 - 6	11. System of Equations 11.1 System of Linear Equations: Substitution and Elimination 11.2 System of Linear Equations: Matrices	Chapter 10 Test due November 5, 2026
Nov 9 - 12	11.3 System of Linear Equations: Determinants 11.4 Matrix Algebra	Chapter 11 Test due Nov 16, 2026
Nov 16 - 20	11.5 Partial Fraction Decompositions 11.6 System of Nonlinear Equations 12. Sequences and Induction	

	12.1 Sequences	
Nov 23 - 27	Fall Break Core Assessment (20% of grade)	Core Assessment due November 30 and December 1, 2026
Nov 30 - Dec 4	12.2 Arithmetic Sequences 12.3 Geometric Sequences; Geometric Series 12.4 Mathematical Induction	Chapter 12 Test due Dec 7, 2026
Dec 7 - 11	<u>Final Examination</u>	

Declarations Page

By signing this page, you agree to the Rules & Regulations set in place by Mr. Vinluan for his class. If you have any questions or concerns, please write them on this page in the blank space along with your email address and/or phone number so I can contact you.

Signature _____ Date _____