MATH 2412 Pre-Calculus

LAMAR INSTITUTE OF TECHNOLOGY

CREDIT
4 Semester Credit Hours (4 hours lecture)

MODE OF INSTRUCTION
Face-to-face

PREREQUISITE/CO-REQUISITE:
Passed MATH 1314 College Algebra with a "C" or better.

COURSE DESCRIPTION
This course is an in-depth combined study of algebra, trigonometry, and other topics necessary for Calculus readiness.

COURSE OBJECTIVES
Upon successful completion of this course, students will:

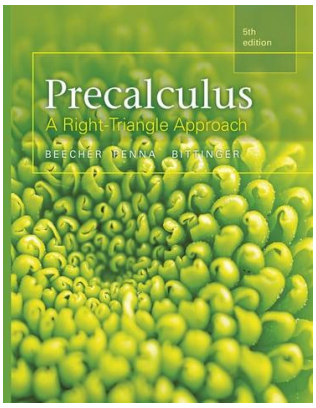
1. Demonstrate and apply knowledge of the properties of functions.
2. Recognize and apply algebraic and transcendental functions and solve related equations.
3. Apply graphing techniques to algebraic and transcendental functions.
4. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
5. Prove trigonometric identities.
6. Solve right and oblique triangles.

INSTRUCTOR CONTACT INFORMATION

Instructor:	Daniel Dove
Email:	dadove@lit.edu
Office Phone:	409-247-5017
Office Location:	TC 112 A
Office Hours:	M: 8:30 – 9:30 T: 8:30 -9:30, 12:00 -2:00 W: 8:30 -9:30 R: 8:30 – 9:30, 12:00 – 1:00 F: 11:00 -2:00

REQUIRED TEXTBOOK AND MATERIALS

- (Comes inclusive with ELE bundle, price varies based on course load, meaning number of credit hours determines price). You will access the book on the first class day through links in Blackboard, but here is the information:



Single-term access

ISBN-13: 9780135676264 ($90 plus tax)

Multi-term access

ISBN-13: 9780135299449 ($ 150 plus tax)

- Calculator of your choice. (No phones or other devices to be used as a calculator!)

ATTENDANCE POLICY

Attendance is mandatory and will count as a homework assignment grade. The grade will be determined by the number of days attended divided by total class days times 100%. If you must miss class, you are still responsible for any missed material covered. It is suggested that if you miss class that you get a copy of a classmate's notes and/or visit your instructor during office hours.

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 EXPECTED TIME REQUIREMENT

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

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

Week of	Assignment	Due Date
Aug. 25	Syllabus 1.1 Introduction to Graphing 1.2 Functions and Graphs	
Sep. 1	**Labor Day Holiday**	
Sep. 2	1.5 Linear Equations, Functions, Zeros and Applications 2.1 Increasing, Decreasing and Piecewise Functions	
Sep. 8	2.2 The Algebra of Functions 2.3 The Composition of Functions	
Sep. 15	2.5 Transformations 3.2 Quadratic Equations, Functions, Zeros and Models 3.3 Analyzing Graphs of Quadratic Equations	
Sep. 22	3.4 Solving Rational Equations and Radical Equations 4.1 Polynomial Functions and Models 4.2 Graphing Polynomial Functions	
Sep. 29	4.3 Polynomial Division; The remainder and Factor Theorem 4.4 Theorems about Zeros **Chapter 1, 2 and 3 Test Wednesday Oct. 1**	All Chapters 1, 2 and 3 Assignments due Monday, Sep. 29
Oct. 6	4.5 Rational Functions 5.1 Inverse Functions 5.2 Exponential Functions and Graphs	
Oct. 13	5.3 Logarithmic Functions and Graphs 5.4 Properties of Logarithmic Functions	
Oct. 20	**5.5** Solving Exponential and Logarithmic Equations **Chapter 4 and 5 Test Wednesday Oct. 22** Core Assessment	All Chapters 4 and 5 Assignments due Monday, Oct. 20
Oct. 27	6.1 Trig functions of Acute Angles 6.2 Applications of Right Triangles	

	6.3 Trig Functions of any Angle	
Nov. 3	6.4 Convert Degrees/Radians 6.5 Circular Functions: Graphs and Properties 6.6 Graphs of Transformed Sine and Cosine Functions	
Nov. 10	7.1 Identities: Pythagorean and Sum/Difference 7.2 Identities: Cofunction, Double Angle and Half Angle 7.3 Proving Trig Identities	
Nov. 17	7.4 Inverses of Trig Identities 7.5 Solving Trig Equations **Chapter 6 and 7 Test Wednesday Nov. 19**	All Chapters 6 and 7 Assignments due Monday, Nov. 17
Nov. 24	8.1 The Law of Sines 8.2 The Law of Cosines	
Nov. 26, 27, 28	**Thanksgiving Holiday**	
Dec. 1	**Final exam Due Dec 3rd**	All Chapter 8 Assignments due Monday, Dec. 1

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

Tests	60%
Course Assignments	20%
Core Assessment	20%

GRADE SCALE

- 90-100 A
- 80-89 B
- 70-79 C
- 60-69 D
- 0-59 F

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be found online at https://lit.edu/online-learning/online-learning-minimum-computer-requirements. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at Special Populations - Lamar Institute of Technology (lit.edu).

STUDENT CODE OF CONDUCT STATEMENT

It is the responsibility of 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*. The *LIT Catalog and Student Handbook* 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.

ARTIFICIAL INTELLIGENCE STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

ADDITIONAL COURSE POLICIES/INFORMATION

What To Expect from Instructor Dove:

- Response to email within 24 hours (except for messages sent Friday afternoon and on weekends)
- Please add name course and section to all email so that I can Identify you
- Flexible office hours/ virtual help when needed. (Schedule an appointment with me if my offered hours do not work for you)
- Grade updates within a week of syllabus due date. Late work, if accepted, will be graded within one week of submission.

Student Behavior Expectations:

- Seek help from instructor early and often, do not wait until the last minute!
- Plan ahead; if you will miss an exam, make prior arrangements to take it early or schedule a make-up date at instructors' convenience
- When sending emails identify yourself with class and section
- Participate in class lecture/discussions.
- Homework is due at certain times throughout the semester. If you cannot complete all Homework Assignments by their due date, you can complete them late for a 15% penalty. The final deadline for all homework assignments, even with late penalty, is December 3rd.
- Exams are to be given during class time on the days listed in the syllabus. If a test must be moved, I will notify everyone through announcements in class and through Blackboard.
- Keep in mind that each student comes from a different cultural background and brings a different set of beliefs and values. As a result, students may disagree on various topics during discussion. Disagreements can lead to critical thinking and deeper understanding, therefore be respectful of other class members and different opinions. Disrespect for others will not be tolerated.
- You are adults, you will be treated as such. If you need to excuse yourself from class for work call, personal family call, or restroom etc. Please do so quietly with minimal disruptions. Please know that you are responsible for any information that you miss during your absence.
- On exams, all of your work should be completely your own. For example, NO use of Artificial Intelligence, your neighbor's paper, or web browsing on devices is allowed during exams or on the Core Assignment, whether given in class or online. For exams, you are allowed scratch paper, a pen or pencil, and a calculator of your choice, but no phones or other devices to be used as a calculator. Any other materials are at the discretion of the instructor.