MATH 2412 Pre-Calculus

CREDIT

4 Semester Credit Hours (4 hours lecture)

MODE OF INSTRUCTION

LAMAR INSTITUTE OF TECHNOLOGY

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.

CORE OBJECTIVES MEASURED

1. **Critical Thinking Skills**: To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
2. **Communication Skills**: To include effective development, interpretation and expression of ideas through written, oral, and visual communication.
3. **Empirical and Quantitative Skills**: To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

Approved: Initials/date

INSTRUCTOR CONTACT INFORMATION

Instructor: Daniel Dove

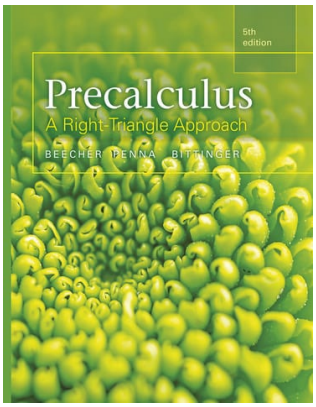
Email: dadove@lit.edu

Office Phone: (409) 247-5017

Office Location: TC 112 A

Office Hours:
Monday: 8:30 -9:30
Tuesday: 8:30-9:30, 12:30-2:30
Wednesday:8:30-9:30
Thursday: 8:30-9:30, 12:30-2:30
Friday: 11:00 – 1:00

REQUIRED TEXTBOOK AND MATERIALS



Single-term access

ISBN-13: 9780135676264 ($90 plus tax)

Multi-term access

ISBN-13: 9780135299449 ($ 150 plus tax)

(Comes inclusive with ELE bundle for $42)

Calculator of your choice. (Ask instructor for available resources)

ATTENDANCE POLICY

Attendance is required, online students should login and work on assignments 2-3 times per week, minimum.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified date as listed in the College Calendar on the Student Success web page. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

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

Week of	Assignment	Due Dates
Jan. 20 -24	Syllabus 1.1 Introduction to Graphing 1.2 Functions and Graphs	**Homework Due Mondays at 11:59 pm.**
Jan. 26-30	1.5 Linear Equations, Functions, Zeros and Applications 2.1 Increasing, Decreasing and Piecewise Functions	
Feb. 2-6	2.2 The Algebra of Functions 2.3 The Composition of Functions	Chapter 1 Homework Due
Feb. 9-13	2.5 Transformations 3.2 Quadratic Equations, Functions, Zeros and Models 3.3 Analyzing Graphs of Quadratic Equations	
Feb. 16-20	3.4 Solving Rational Equations and Radical Equations 4.1 Polynomial Functions and Models 4.2 Graphing Polynomial Functions	Chapter 2 Homework Due
Feb. 23-27	4.3 Polynomial Division; The remainder and Factor Theorem 4.4 Theorems about Zeros **Chapter 1, 2 and 3 Test Wednesday Feb. 25**	Chapter 3 Homework Due
Mar 2-6	4.5 Rational Functions 5.1 Inverse Functions 5.2 Exponential Functions and Graphs	
Mar 9-13	**Spring Break, No Class, Campus Closed**	
Mar 16-20	5.3 Logarithmic Functions and Graphs 5.4 Properties of Logarithmic Functions	Chapter 4 Homework Due
Mar 22-27	**5.5** Solving Exponential and Logarithmic Equations **Chapter 4 and 5 Test Wednesday Mar. 25**	Chapter 5 Homework Due
Mar 30-3	6.1 Trig functions of Acute Angles 6.2 Applications of Right Triangles 6.3 Trig Functions of any Angle	
Apr 6-10	6.4 Convert Degrees/Radians 6.5 Circular Functions: Graphs and Properties 6.6 Graphs of Transformed Sine and Cosine Functions	
Apr 13-17	7.1 Identities: Pythagorean and Sum/Difference 7.2 Identities: Cofunction, Double Angle and Half Angle 7.3 Proving Trig Identities	Chapter 6 Homework Due
Apr 20 -24	7.4 Inverses of Trig Identities 7.5 Solving Trig Equations **Core Assessment**	
April 27-May 1	**Chapter 6 and 7 Test Wednesday, Apr. 29** 8.1 The Law of Sines 8.2 The Law of Cosines	Chapter 7 Homework Due
May 4-8	**Final exam Due May 9th, Tentative Schedule of May 6**	Chapter 8 Homework Due

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

- Test 60%
- Assignments 20%
- Core Assessment 20%

GRADE SCALE

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

TECHNICAL REQUIREMENTS

For the latest technical requirements, including hardware, compatible browsers, operating systems, etc., review the Minimum Computer and Equipment Requirements on the LIT Online Experience page. 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 Daniel 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. If you have missed an exam, contact instructor as soon as possible to schedule a makeup exam. I prefer within a day of having to miss to schedule a makeup exam, and within a week of the original exam date to take the test. If you wait longer than that to schedule and take the makeup exam, you will receive a zero on that exam! I reserve the right to make exceptions to this policy based on extenuating circumstances with documentation.

- 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 penalty. The final deadline for all homework assignments, even with late penalty, is May 6th.
- 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.