College Algebra (Math 1314)

INSTRUCTOR CONTACT INFORMATION
      Instructor: Mark Jhun Vinluan

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      Office Phone: 409-617-6600

      Office Location: Beaumont Early College High School - Room 309

      Office Hours: Monday to Friday, 7:15 AM - 2:45 PM

      Afterclass Tutorials: Tuesday and Wednesday, from 3:00 PM to 4:00 PM

CREDIT: 3 units

MODE OF INSTRUCTION: Face-to-Face class

PREREQUISITE: A score of 350 or above on the TSI-Assessment placement test.

COURSE DESCRIPTION:
      This course provides a concise review of fundamental algebraic topics, including real numbers, polynomials, rational expressions, and rational exponents. It then focuses on algebraic equations and inequalities in forms like linear, quadratic, radical, and absolute value.

      Additionally, emphasis is placed on functions and their graphs, covering linear, quadratic, polynomial, rational, exponential, and logarithmic functions. The course explores systems of linear equations, with a focus on matrices, sequences, induction, and the Binomial theorem.

COURSE OBJECTIVES:
      At the end of the semester, students will:
1. develop a thorough understanding of foundational algebraic topics, including real numbers, polynomials, rational expressions, and rational exponents;
2. acquire proficiency in solving algebraic equations and inequalities, with a focus on various forms such as linear, quadratic, radical, and absolute value;
3. interpret and graph functions accurately, covering linear, quadratic, polynomial, rational, exponential, and logarithmic functions;
4. understand and apply matrix methods to solve systems of linear equations; and

5. explore advanced algebraic concepts including sequences, mathematical induction, and the Binomial theorem, enhancing problem-solving skills and logical reasoning.

Core objectives:

1. *Connection between Algebraic and Graphical Representations:* Establish a strong link between algebraic representations and graphical interpretations for various functions, enhancing overall mathematical understanding.
2. *Application in Real-World Contexts*: Apply algebraic concepts to solve real-world problems, emphasizing practical applications and connecting theoretical knowledge to everyday scenarios.
3. *Interactive Learning:* Engage in interactive learning methods, collaborative activities, and technology integration to reinforce theoretical concepts through practical application.
4. *Critical Thinking Skills:* Analyze and evaluate algebraic problems, identify key components and relationships, formulate logical strategies for solving complex equations and inequalities, and apply critical thinking to interpret and analyze graphical representations of various functions.
5. *Communication Skills:* Clearly communicate mathematical solutions and reasoning both in written and verbal forms, collaborate effectively in group activities, articulating mathematical concepts to peers, and present findings and solutions in a clear and organized manner, demonstrating effective communication of algebraic ideas.
6. *Empirical and Quantitative Skills:* Utilize empirical reasoning to apply algebraic concepts in real-world scenarios, demonstrate proficiency in quantitative analysis through accurate interpretation of mathematical models, and apply quantitative skills to solve problems related to systems of linear equations, sequences, and the Binomial theorem.

REQUIRED TEXTBOOK AND MATERIALS
1. MyMathLab Standalone Access Code
2. Calculator of your choice, but no phones as calculators.
3. Chromebook
4. 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 responsibility of the student to communicate such circumstances to the instructor 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 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*. 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.

STARFISH

The institution employs an early alert system named Starfish. Periodically, you may be notified via email by Starfish concerning your academic standing, grades, and attendance. Faculty employ this tool to record attendance, raise flags or kudos, and facilitate appointments. Accessible through Blackboard or MyLIT, the Starfish link provides comprehensive academic alerts and guidance, aiding in your pursuit of academic success at LIT.

COURSE EXPECTATIONS

Instructor Expectations from Students
● Actively participate in class discussions and activities.
● Attend classes consistently and punctually.
● Submit assignments and activities on or before the specified deadlines.
● Uphold principles of academic honesty and integrity in all coursework.
● Communicate clearly and promptly with the instructor regarding any concerns or questions.
● Demonstrate respectful and professional behavior towards the instructor and peers.
● Follow course guidelines, syllabus instructions, and assessment criteria.

GRADING SYSTEM

Final grades will be calculated according to the following criteria:

- MidTerm and Final Exam   50%
- Chapter Test   30%
- Assignments   20%

GRADE SCALE

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

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

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).

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

Week	Topic	Assignment due date
Jan 8 - 12	**Review** R.1. Real Numbers R.2. Algebra Essentials R.4. Polynomials R.5. Factoring Polynomials	R.1 - R.5 (except R.3) Monday, Jan 19
Jan 15 - Jan 19	R.6. Synthetic Division R.7. Rational Expression R.8. nth Root Rational Exponents	R.6 - R.8 Monday Jan 22
Jan 22 - Jan 26	**Chapter 1. Equation and Inequalities** 1.1. Linear Equations 1.2. Quadratic Equations 1.3. Complex Numbers; Quadratic Equations in the Complex Number System	Chapter 1.1 - 1.3 Monday, Jan 29
Jan 29 - Feb 2	1.4. Radical Equation 1.5. Solving Inequalities 1.6. Equations and Inequalities Involving Absolute Value **Chapter 1 Test - Friday, Feb 2**	Chapter 1.4 - 1.6 and Chapter 1 Test Monday, Feb 5
Feb 5 - Feb 9	**Chapter 3. Functions and Graphs** 3.1. Functions 3.2. The Graph of Functions 3.3. Properties of Functions 3.4. Library of Functions 3.5. Graphing Techniques: Transformation **Chapter 3 Test - Friday, Feb 9**	Chapter 3.1 - 3.5 and Chapter 3 Test Monday, Feb 12
Feb 12 - Feb 16	**Chapter 4. Linear and Quadratic Functions** 4.1. Linear Functions and Linear Model 4.3. Quadratic Functions and Their Properties 4.5. Inequalities Involving Quadratic Functions **Chapter 4 Test - Friday, Feb 16**	Chapter 4.1, 4.3, and 4.5; Chapter 4 Test Monday, Feb 12

Feb 19 - Feb 23	Midterm Exam Review **Midterm Examination- Thu/Fri, Feb 22/23**	
Feb 26 - Mar 1	**Chapter 5. Polynomial and Rational Functions** 5.1. Polynomial Functions 5.2. Graphing Polynomial Functions 5.3 Properties of Rational Functions 5.4. The Graph of Rational Functions	Chapter 5.1 - 5.4 Wednesday, Mar 8
Mar 4 - Mar 8	5.5. Polynomial Inequalities 5.6. The Real Zeros of Polynomial Functions 5.7. The Complex Zeros **Chapter 5 Test - Friday, Mar 8**	Chapter 5.5 - 5.7 and the Chapter 5 Test Monday, Mar 18
Mar 18 - Mar 22	**Chapter 6. Exponential and Logarithmic Functions** 6.1. Composite Functions 6.2. One-to-one Functions; Inverse Functions 6.3. Exponential Functions	Chapter 6.1 - 6.3 Monday, Mar 25
Mar 25 - Mar 29	6.4. Logarithmic Functions 6.5. Properties of Logarithms 6.6. Logarithmic and Exponential Equations **Chapter 6 Test - Friday, Mar 29**	Chapter 6.4 - 6.6 and Chapter 6 Test Monday, April 1
Apr 1 - Apr 5	**Chapter 8. System of Equations** 8.1. System of Linear Equations: Substitution and Elimination 8.5. System of Linear Equations: Matrices	Chapter 8.1 and 8.5 Monday, Apr 8
Apr 8 - Apr 12	8.6. System of Linear Equations: Determinants 8.7. Partial Fractions **Chapter 8 Test - Friday, April 12**	Chapter 8.6 - 8.7 and Chapter 8 Test Monday, Apr 15
Apr 15 - Apr 19	**Chapter 9. Sequence; Induction; the Binomial Theorem** 9.1. Sequence 9.2. Arithmetic Sequence 9.3. Geometric Sequence	Chapter 9.1 - 9.3 Monday, Apr 22

Apr 22 - Apr 26	9.4 Mathematical Induction	Chapter 9.4 Monday, Apr 29
Apr 29 - May 3	9.5. Binomial Theorem **Chapter 9 Test - Friday, May 3**	Chapter 9.5 and Chapter 9 Test Monday, May 6
May 6 - May 9	**Final Examination - Mon/Tue, May 6/7**	