

## Advanced Intermediate Algebra (TMTH 0214)



**LAMAR INSTITUTE  
OF TECHNOLOGY**

### INSTRUCTOR CONTACT INFORMATION

Instructor: James Jean  
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Office Phone: 409-257-0067  
Office Location: T5 Rm. 103

Office Hours: MW: 8:30am – 9:00am; 10:00am – 11:00am; 12:00pm – 1:00pm  
TR: 8:30am – 9:20am; 12:30pm – 1:00pm  
F: 8:00am – 10:00am

**Credit:** 2 semester credit hour (2 hour lecture)

### MODE OF INSTRUCTION

Face to Face

### Prerequisite/Co-requisite:

- A score of 336-349 on the TSI-Assessment placement test.
- Must be co-enrolled in MATH 1314 College Algebra.

### Course Description

A study of relations and functions, inequalities, algebraic expressions and equations (absolute value, polynomial, radical, rational), with a special emphasis on linear and quadratic expressions and equations.

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### Required Textbook and Materials

1. MyMathLab Standalone Access Code
  - a. NOTE: Not necessary if code already purchased for MATH 1314
    - i. May be purchased online at [www.mymathlab.com](http://www.mymathlab.com)
    - ii. May be purchased at a local bookstore: **ISBN 032119991X**
2. A basic scientific calculator; *please check with your individual instructor as to the specific type of calculator required.*

### Course Objectives

Upon completion of this course, the student will be able to:

1. Define, represent, and perform operations on real and complex numbers.
2. Recognize, understand, and analyze features of a function.
3. Recognize and use algebraic (field) properties, concepts, procedures (including factoring), and algorithms to combine, transform, and evaluate absolute value, polynomial, radical, and rational expressions.
4. Identify and solve absolute value, polynomial, radical, and rational equations.
5. Identify and solve absolute value and linear inequalities.
6. Model, interpret, and justify mathematical ideas and concepts using multiple representations.
7. Connect and use multiple strands of mathematics in situations and problems, as well as in the study of other disciplines.

## Course Outline

- A. Chapter 1: Equations and Inequalities MATH 1314 Review Part 1
  - 1. The Real Numbers
  - 2. Addition and Subtraction of Real Numbers
  - 3. Multiplication and Division of Real Numbers
  - 4. Order of Operations
  - 5. Introduction to Polynomials
  - 6. Addition and Subtraction of Polynomials
  - 7. Solving 1-Step Linear Equations with Addition/Subtraction
  - 8. Solving 1-Step Linear Equations with Multiplication/Division
  - 9. Solving Multi-Step Linear Equations
  - 10. *Solve Linear Equations (MATH 1314)***
- B. Chapter 1 MATH 1314 Review Part 2
  - 1. Rules of Exponents
  - 2. Multiplication of Polynomials
  - 3. GCF vs. LCM
  - 4. Factoring and the Greatest Common Factor
  - 5. Factoring Binomials
  - 6. Simplifying Rational Expressions
  - 7. Solving Rational Equations
  - 8. *Solve Equations that Lead to Linear Equations and that can be Modeled by Linear Equations (MATH 1314)***
- C. Chapter 1 MATH 1314 Review Part 3
  - 1. Factoring by Grouping
  - 2. Factoring Trinomials
  - 3. Factoring – A General Strategy
  - 4. *Solving Quadratic Equations by Factoring (MATH 1314)***
  - 5. Simplifying Radical Expressions
  - 6. *Solving Quadratic Equations using the Principle of Square Roots (MATH 1314)***
  - 7. *Solving Quadratic Equations by Completing the Square (MATH 1314)***
  - 8. *Solving Quadratic Equations using the Quadratic Formula (MATH 1314)***
- D. Chapter 1 MATH 1314 Review Part 4
  - 1. *Complex Numbers (Addition /Subtraction/ Multiplication / Division) (MATH 1314)***
  - 2. Multiplying Radical Expressions
  - 3. Adding and Subtracting Radical Expressions
  - 4. *Solving Radical Equations (MATH 1314)***
  - 5. *Solving Inequalities (MATH 1314)***
  - 6. *Solving Absolute Value Equations (MATH 1314)***
  - 7. *Solving Absolute Value Inequalities (MATH 1314)***
- E. Chapter 2: Graphs MATH 1314 Review
  - 1. Plotting Points
  - 2. Determine whether given points are on the graph of an equation
  - 3. *Graph Linear Equations (MATH 1314)***
- F. Chapter 3: Functions and Their Graphs MATH 1314 Review
  - 1. Evaluating Functions
  - 2. Finding the Domain of a Radical or Rational Function
- G. Chapter 4: Linear and Quadratic Functions MATH 1314 Review
  - 1. Graphing Quadratics
- H. Chapter 5: Polynomial and Rational Functions MATH 1314 Review
  - 1. Division of Polynomials by Binomials
- I. Chapter 6: Exponential and Logarithmic Functions MATH 1314 Review
  - 1. More Rules of Exponents

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

<b>Week</b>	<b>Assignment</b>	<b>Due Date</b>
Jan 23 - 24	Course Introduction and policies. TMTH 0214 Review Topics: Module 1	(all assignments due by 11:59pm)
Jan 27 - 31	TMTH 0214 Review Topics: Module 4	
Feb 3 - 7	TMTH 0214 Review Topics: Module 7	
Feb 10 - 14	TMTH 0214 Review Topics: Module 8	<b>All TMTH 0214 Assignments due</b>
Feb 17 - 21	1.1 Linear Equations 1.2 Quadratic Equations 1.3 Complex numbers; Quadratic Equations in the Complex Number System	
Feb 24 - 28	1.4 Radical Equations; Equations Quadratic in Form; Factorable Equations 1.5 Solving Inequalities 1.6 Equations and Inequalities Involving Absolute Value	
Mar 3 - 7	<b><u>Chapter 1 Test</u></b> 2.1 Distance and Midpoint Formulas 2.2 Graphs of Equations in Two Variables; Intercepts; Symmetry 2.3 Lines	<b>All Chapter 1 Assignments due</b>
Mar 10 - 14	Spring Break	
Mar 17 - 21	3.1 Functions 3.2 Graph of a Functions 3.3 Properties of Functions	
Mar 24 - 28	3.4 Libraries of Functions; Piecewise-Defined Functions 3.5 Graphing Techniques <b><u>Chapter 2/3 Test</u></b> 4.1 Linear Functions and Their Properties	<b>All Chapter 2 and 3 Assignments due</b>
Mar 31 – Apr 4	4.3 Quadratic Functions and Their Properties 5.1 Polynomial Functions and Models 5.5 Real Zeros of Polynomial Functions	
Apr 7 – 11	5.6 Complex Zeros of; Fundamental Theorem of Algebra 5.7 Complex Zeros <b><u>Chapter 4/5 Test</u></b>	<b>All Chapter 4 and 5 Assignments due</b>
Apr 14 - 17	6.1 Composite Functions 6.2 One-to-One Functions; Inverse Functions	
April 18	Good Friday	
Apr 21 - 25	6.3 Exponential Functions 6.4 Logarithmic Functions 6.5 Properties of Logarithmic Functions	
Apr 28 – May 2	6.6 Logarithmic and Exponential Equations 6.7 Applications 8.2 Systems of Linear Equations; Matrices	
May 5 - 7	<b><u>Chapter 6/8 Test</u></b>	<b>All Chapter 6 and 8 Assignments</b>
May 12	<b><u>Final Exam Due.</u></b>	

## Grade Scale

90 – 100	DA
80 – 89	DB
70 – 79	DC
0 – 69	DF

## Course Evaluation

Final grades will be calculated according to the following criteria:

TMTH 0214 Course Assignments	40%
MATH 1314 Course Average	60%

## Course Requirements

1. The student must purchase all of the required course materials.
2. The student will be expected to have access to the Internet and a computer.
3. Blackboard and MyMathLab logon and access to course a minimum of four times per week.
4. Additional course requirements as defined by the individual course instructor.

## Course Policies

1. Cheating of any kind will not be tolerated.
2. Additional class policies as defined by the individual course instructor.

## Technical Requirements (for courses using Blackboard)

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

[https://help.blackboard.com/en-us/Learn/9.1\\_2014\\_04/Student/015\\_Browser\\_Support/015\\_Browser\\_Support\\_Policy](https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy) A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

## Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building. You may also visit the online resource at <http://www.lit.edu/depts/stuserv/special/defaults.aspx>

## 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](http://www.lit.edu) or obtained in print upon request at the Student Services Office. 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.