

# Pre-Algebra

## MAT-800

2022 07/01/2022 to 06/30/2023 Modified 04/22/2022

### Course Description

Pre-Algebra is an introductory algebra course designed to prepare students for Algebra I. Pre-algebra will review basic math concepts regarding number sense and the rules regarding math operations and the order of implementation. Students taking pre-algebra will practice concepts taught in previous math courses at higher levels and in ways that will broaden their skills.

Students will also practice algebraic thinking in order to model and solve real world problems. Geometric concepts and related formulas will be linked to algebraic thinking to prepare students for future courses.

### Rationale

In order to be successful in Algebra 1, it is important that a student has a good background in basic math skills in order to move on to higher levels of mathematics. In Pre-Algebra the student will be introduced to basic concepts of algebraic thinking in order to prepare the student to take Algebra 1.

#### Prerequisite

7th Grade Math or teacher recommendation

### Measurable Learning Outcomes

- A. The student will be able to add/subtract integers, simplify exponents and perform the order of operations.
- B. The student will add/subtract/multiply/divide fractions and decimals.
- C. The student will simplify algebraic expressions, combine like terms and solve equations.
- D. The student will solve and graph inequalities, write ratios and solve percent real world problems.
- E. The student will understand and convert between units of measurement.
- F. The student will graph linear equations and find the slope of a line.
- G. The student will perform area calculations, find the perimeter, and use the Pythagorean Theorem to find sides of a triangle.
- H. The student will perform volume and surface area calculations and put numbers in standard form in scientific notation.
- I. The student will add/subtract polynomials and determine the probability of events.
- J. The student will work real-world probability problems.

### Course Resources

See LUOA's [Systems Requirements](#) for computer specifications necessary to operate LUOA curriculum. Also view [Digital Literacy Requirements](#) for LUOA's expectation of users' digital literacy.

This course makes use of third-party digital resources to enhance the learning experience. LUOA staff and faculty have curated these

resources. Students can safely access them to complete coursework. Please ensure that internet browser settings, pop-up blockers, and other filtering tools allow for these resources to be accessed. See Technologies and Resources Used in this Course below for a specific list.

Note: Embedded YouTube videos may be utilized to supplement LUOA curriculum. YouTube videos are the property of the respective content creator, licensed to YouTube for distribution and user access. As a non-profit educational institution, LUOA is able to use YouTube video content under the YouTube Terms of Service. For additional information on copyright, please contact the [Jerry Falwell Library](#).

## Materials Required for Purchase

The following materials are required in this course:

- Calculator
- Paper for working out problems
- Graph paper for graphing equations and other solutions to problems

## Scripture Attribution

All Scripture quotations, unless otherwise indicated, are from the ESV® Bible (The Holy Bible, English Standard Version®), copyright © 2001 by Crossway, a publishing ministry of Good News Publishers. Used by permission. All rights reserved. May not copy or download more than 500 consecutive verses of the ESV Bible or more than one half of any book of the ESV Bible."

## Technologies and Resources Used in this Course

The following resource(s) are used throughout this course:

- Thinkwell

## Policies

Students are accountable for all information in the [Student Handbook \(https://www.liberty.edu/online-academy/wp-content/uploads/2021/11/LUOA-Student-Handbook.pdf\)](https://www.liberty.edu/online-academy/wp-content/uploads/2021/11/LUOA-Student-Handbook.pdf). Below are a few policies that have been highlighted from the Student Handbook.

## Course Grading Policies

The student's grades will be determined according to the following grading scale and assignment weights. The final letter grade for the course is determined by a 10-point scale. Assignments are weighted according to a tier system, which can be referenced on the Grades page in Canvas. Each tier is weighted according to the table below. Items that do not affect the student's grade are found in Tier 0.

Grading Scale		Assignment Weights	
A	90-100%	Tier 0	0%
B	80-89%	Tier 1	25%
C	70-79%	Tier 2	35%
D	60-69%	Tier 3	40%
F	0-59%		

In order for students to receive credit for a course, the following conditions have to be met:

- All semester exams and module tests have to be completed.
- All Tier 3 projects or papers have to be completed.
- Fewer than 10 zeros exist in the gradebook for blank submissions in a full credit course and 5 zeros for blank submissions in

a semester course.

## Types of Assessments

To simplify and clearly identify which policies apply to which assessment, each assessment has been categorized into one of four categories: Lesson, Assignment, Quiz, or Test. Each applicable item on the course Modules page has been designated with an identifier chosen from among these categories. Thus, a Quiz on the American Revolution may be designated by the title, "1.2.W - Quiz: The American Revolution." These identifiers were placed on the Modules page to help students understand which Resubmission and Honor Code policies apply to that assessment (see the Resubmission Policy and Honor Code Policy below for further details).

- **Lesson:** *Any item on the Modules page designated as a "Lesson"*

These include instructional content and sometimes an assessment of that content. Typically, a Lesson will be the day-to-day work that a student completes.

- **Assignment:** *Any item on the Modules page designated as an "Assignment"*

Typical examples of Assignments include, but are not limited to, papers, book reports, projects, labs, and speeches. Assignments are usually something that the student should do his or her best work on the first time.

- **Quiz:** *Any item on the Modules page designated as a "Quiz"*

This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Quizzes cover a smaller amount of material than Tests.

- **Test:** *Any item on the Modules page designated as a "Test"*

This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Tests cover a larger amount of material than Quizzes.

## Resubmission Policy

Students are expected to submit their best work on the first submission for every Lesson, Assignment, Quiz, and Test. However, resubmissions may be permitted in the following circumstances:

- **Lesson:** Students are automatically permitted two attempts on a Lesson. Students may freely resubmit for their first two attempts without the need for teacher approval.
- **Assignment:** Students should do their best work the first time on all Assignments. However, any resubmissions must be completed before the student moves more than one module ahead of that Assignment. For example, a student may resubmit an Assignment from Module 3 while in Module 4, but not an Assignment from Modules 1 or 2. High School students may not resubmit an Assignment without expressed written permission from the teacher in a comment.
- **Quiz:** Students may NOT resubmit for an increased grade.
- **Test:** Students may NOT resubmit for an increased grade.

If a student feels that he or she deserves a resubmission on a Lesson, Assignment, Quiz, or Test due to a technical issue such as a computer malfunction, the student should message his or her teacher to make the request.

## Honor Code Policy

Every time a student violates the Honor Code, the teacher will submit an Honor Code Incident Report. The Student Support Coordinator will review the incident and allocate the appropriate consequences. Consequences, which are determined by the number of student offenses, are outlined below:

- **Warning:** This ONLY applies to high school Lessons and elementary/middle school Assignments and Lessons. Students should view these actions as learning opportunities.
  - **Lessons:** A zero will be assigned for the question only.
  - **Elementary/Middle School Assignment:** The student must redo his or her work; however, the student may retain his or her original grade.
- **1st Offense:**

- **Lesson, Quiz, or Test:** The student will receive a 0% on the entire assessment.
- **Assignment:** The student will either:
  - Receive a 0% on the original assignment
  - Complete the Plagiarism Workshop
  - Retry the assignment for a maximum grade of 80%
- **2nd Offense:** The student will receive a 0% and be placed on academic probation.
- **3rd Offense:** The student will receive a 0% and the Director of Faculty will determine the consequences that should follow, possibly including withdrawal from the course or expulsion from the academy.

## Materials Selection Policy

LUOA curates educational materials that are consistent with the school's philosophy; however, the fallen human condition depicted in literature (as in Scripture itself) is not always pleasant. Valuable works sometimes have objectionable or profane elements. Good books provide four (4) recognized values.

- They build godly attitudes and character traits.
- They deepen our social and cultural awareness.
- They strengthen our use of written language.
- They provide a lifelong source of enjoyment and relaxation.

In order to instill these values in students and fulfill the stated objectives of the school, all LUOA students are expected to read and study good books on a regular basis. Recognizing that materials designed for one level may not be appropriate for another, three (3) levels of criteria are applied:

- Elementary materials must contain no objectionable material,
- Objectionable elements in sixth through eighth-grade materials must be limited and must serve a specific educational purpose, and
- Objectionable content may be included in high school materials but must be outweighed by positive literary, curricular, and/or Christian values.

The curriculum department has approved required educational materials for students.

## Schedule

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### First Quarter

#### Module 1: Principles of Algebra

Week 1: Expressions and Properties of Numbers

Week 2: Integers, Equations, and Inequalities & Module 1 Assessment

#### Module 2: Rational Numbers

Week 3: Operations with Rational Numbers

Week 4: Equations with Rational Numbers and Module 2 Assessment

#### Module 3 Introduction to Graphs, Functions, & Sequences

Week 5: Tables and Graphs

Week 6: Functions and Sequences and Module 3 Assessment

#### Module 4: Exponents & Roots

Week 7: Properties of Exponents

Week 8: Square Roots and the Pythagorean Theorem

Week 9: Module 4 and Quarter 1 Assessments

### **Second Quarter**

#### **Module 5: Proportionality & Measurement**

Week 10: Ratios, Rates, and Proportions

Week 11: Similarity, Scale, and Measurement

Week 12: Measurement and Module 5 Assessment

#### **Module 6: Percents**

Week 13: Proportions and Percents

Week 14: Applying Percents and Module 6 Assessment

#### **Module 7: Foundations of Geometry**

Week 15: Points, Lines, Angles, and Polygons

Week 16: More Polygons

Week 17: Patterns in Geometry

Week 18: Module 7 and Quarter 2 Assessments

### **Third Quarter**

#### **Module 8: Perimeter, Area, & Volume**

Week 19: Perimeter and Area

Week 20: Three-Dimensional Geometry

Week 21: More Three-Dimensional Geometry and Module 8 Assessment

#### **Module 9: Data and Statistics**

Week 22: Collecting and Describing Data

Week 23: Data Displays

Week 24: More Data Displays and Module 9 Assessment

#### **Module 10: Probability**

Week 25: Experimental and Theoretical Probability

Week 26: Probability and Counting

Week 27: Module 10 and Quarter 3 Assessments

#### **Fourth Quarter**

##### **Module 11: Multi-Step Equations & Inequalities**

Week 28: Solving Equations

Week 29: Solving Literal Equations and Inequalities

Week 30: Solving Systems of Equations and Module 11 Assessment

##### **Module 12: Graphing Lines**

Week 31: Linear Equations

Week 32: More Linear Equations and Relationships

Week 33: More Linear Relationships and Module 12 Assessment

##### **Module 13: Polynomials**

Week 34: Introduction to Polynomials

Week 35: Operations with Polynomials

Week 36: Module 13 and Quarter 4 Assessments