Course Description

Algebra I takes the student beyond the basic mathematics skills learned at lower level classes of mathematics and introduces them to topics that explore higher mathematic principles and skills. The student will investigate and solve problems that use both real numbers and variables. The skills learned will be used to solve real life problems to help students function better in the world around them. An emphasis will be placed on solving equations, including linear, quadratic, inequalities, multistep, and variations. Factoring and graphing will be used to solve a variety of equations and systems of equations. Also, skills related to exponents, statistics, and probability will be explored and related to practical application.

Rationale

In order to function in the real world, a basic knowledge of mathematics is essential for being successful in a variety of fields and occupations. Every day we use mathematics to solve everything from balancing a checkbook to determining the amount of shingles needed for a roof to the angle of elevation when surveying property for road improvements. Algebra I offers applicable math skills and practice to solve problems we encounter in the real world both at the personal and global level.

Prerequisite

Pre-Algebra or appropriate score on Math assessment test

Measurable Learning Outcomes

A. Real Numbers, Order of Operations, and Simplifying Expressions
B. Solving Equations, Percent, and Inequalities
C. Linear Functions, Sequences, and Rate of Change
D. Slope-Intercept, Point-Slope, and Solving Systems of Equations by Substitution and Elimination
E. Linear Inequalities – Graphing and Solving
F. Exponents and Polynomials
G. Factoring Methods and Quadratic Functions and Equations
H. The Quadratic Formula, Probability, and Graphing Data
I. Exponential, Radical, and Rational Functions
J. Solving Rational Equations – Multiplying, Dividing, Adding, and Subtracting
Course Materials

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:

- Scientific or graphing calculator
- Paper for working out problems
- Graph paper for graphing equations and other solutions to problems

Technologies and Resources Used in this Course

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

- Thinkwell

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.

<table>
<thead>
<tr>
<th>Grading Scale</th>
<th>Assignment Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 90-100%</td>
<td>Tier 0 0%</td>
</tr>
<tr>
<td>B 80-89%</td>
<td>Tier 1 25%</td>
</tr>
<tr>
<td>C 70-79%</td>
<td>Tier 2 35%</td>
</tr>
<tr>
<td>D 60-69%</td>
<td>Tier 3 40%</td>
</tr>
<tr>
<td>F 0-59%</td>
<td></td>
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</tbody>
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Course Policies

Students are accountable for all information in the Student Handbook. Below are a few policies that have been highlighted from the Student Handbook.
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 Honor Code and Resubmission policies apply to that assessment (see the Honor Code and Resubmission policies on the pages that follow 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. The student may freely resubmit for their first two attempts without the need for teacher approval.

- **Assignment:** Students are intended to 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, and that request will need to be approved by a Department Chair.

**Consequences for Violations to the Honor Code**

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 Faculty Chair will determine the consequences that should follow, possibly including withdrawal from the course or expulsion from the academy.
Scope and Sequence
Algebra 1

Module 1: Real Numbers, Order of Operations, and Simplifying Expressions
Week 1: Foundations for Algebra
Week 2: Tools for Algebra
Week 3: Simplifying Expressions and Introduction to Functions
Week 4: Solving One and Two-Step Equations

Module 2: Solving Equations, Percents, and Inequalities
Week 5: Solving Two-Step and Multi-Step Equations
Week 6: Literal and Absolute Value Equations, Proportions
Week 7: Percents
Week 8: Inequalities

Module 3: Linear Equations, Sequences, and Rate of Change
Week 9: Solving Inequalities
Week 10: Linear Functions and Applications of Functions
Week 11: Applications and Characteristics of Linear Functions
Week 12: Rate of Change, Slope, the Midpoint and Distance Formulas

Module 4: Slope-Intercept, Point Slope, and solving Systems of Equations by Substitution and elimination
Week 13: Finding Slope
Week 14: Slopes of Parallel and Perpendicular Lines and Transforming Functions
Week 15: Solving Systems of Equations by Substitution & Elimination
Week 16: Solving and Applying Systems

Module 5: Linear Inequalities
Week 17: Direct Variation and Systems of Inequalities
Week 18: Semester Review and Exam

Module 6: Exponents and Polynomials
Week 19: Properties of Exponents
Week 20: Properties and Applications of Exponents
Week 21: Polynomials
Week 22: Monomials and Binomials

Module 7: Factoring Methods and Quadratic Functions and Equations
Week 23: Factoring Methods
Week 24: Applying Factoring Methods
Week 25: Quadratic Functions
Week 26: Solving Quadratic Equations

(Continued on next page)
Module 8: The Quadratic Formula, Probability and Graphing Data
Week 27: Working with Quadratic Equations and the Quadratic Formula
Week 28: Probability
Week 29: Graphing Data
Week 30: Data Analysis

Module 9: Exponential, Radical and Rational Functions
Week 31: Geometric Sequences and Exponential Functions
Week 32: Radical Functions, Expressions, and Equations
Week 33: Radical Expressions and Equations
Week 34: Variation, Rational Functions and Expressions

Module 10: Solving Rational Equations
Week 35: Solving Rational Equations
Week 36: Semester Review and Exam