LIBERTY UNIVERSITY | ONLINE ACADEMY

Pre-Algebra

MAT0800

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 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:

- 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.

Grading Scale

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

Assignment Weights

Tier 0	0%
Tier 1	25%
Tier 2	35%
Tier 3	40%

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

1. All semester exams and module tests have to be completed,
2. All Tier 3 projects or papers have to be completed, and

3. 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.

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. 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, 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

Pre-Algebra MAT0800

Module 1: Integers, Exponents, and the Order of Operations

Week 1: Adding and Subtracting Whole Numbers
Week 2: Multiplying, Dividing, and Properties of Whole Numbers
Week 3: Adding and Subtracting Integers
Week 4: Exponents and Order of Operations

Module 2: Fractions and Decimals

Week 5: Simplifying, Multiplying, and Dividing Fractions
Week 6: Adding and Subtracting Fractions and Introduction to Decimal Numbers
Week 7: Operations with Decimals
Week 8: Working with Fractions and Decimals

Module 3: Algebraic Expressions and Solving Equations

Week 9: Algebraic Expressions
Week 10: Introduction to Solving Equations
Week 11: Solving One-Step and Two-Step Equations
Week 12: Solving Multistep Equations

Module 4: Inequalities, Ratios and Percent

Week 13: Solving Inequalities
Week 14: Ratios and Proportions
Week 15: Introduction to Percent
Week 16: Application of Percent

Module 5: Measurement and Semester Exam

Week 17: Measurement
Week 18: Semester Exam

SECOND SEMESTER

Module 6: Graphs, Linear Equations and Slope

Week 19: Organizing and Displaying Data
Week 20: Circle Graphs and Variability
Week 21: Equations, Tables and Graphs
Week 22: Linear Equations and Slope

Module 7: Area, Perimeter and the Pythagorean Theorem

Week 23: Polygons
Week 24: Area, Perimeter and Circumference
Week 25: Circles and Composite Figures
Week 26: The Pythagorean Theorem and Three-Dimensional Figures

Module 8: Volume and Surface Area, Exponents and Scientific Notation

Week 27: Volume and Surface Area
Week 28: Properties of Exponents
Week 29: Exponents and Scientific Notation
Week 30: Introduction to Polynomials

Module 9: Polynomials and Probability

Week 31: Multiplying Polynomials
Week 32: Factoring Polynomials
Week 33: Introduction to Probability
Week 34: Using Probability

Module 10: Application of Probability and Semester Exam

Week 35: Application of Probability
Week 36: Semester Exam