

SOPHIA Learning

CA1001: College Algebra (3 semester credits)

COURSE DESCRIPTION

Students in the College Algebra course build mastery around linear, non-linear, and other mathematical functions that include algebraic, graphic, and numeric properties. Students will demonstrate the application of these concepts to real life scenarios.

Course Effective Dates: June 2012 – Present

Prerequisite(s): Entry level Gen Ed course – no prerequisites

Length of course: This is a self-paced course. Students have 60 days with an additional 30 day extension (if needed) to complete the course.

ACE CREDIT® Recommendation: In the lower-division baccalaureate/associate degree category, 3 semester hours in mathematics (3/16).

LEARNING OUTCOMES

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

1. Perform mathematical functions involving real numbers.
2. Apply mathematical concepts to linear equations, inequalities, and series/sequences.
3. Apply mathematical concepts to linear representations and systems of linear equations and inequalities.
4. Apply mathematical concepts to algebraic expressions and quadratic equations.
5. Apply mathematical concepts to functions and non-linear equations.

OUTLINE OF MAJOR CONTENT AREAS

- Discovering Number Types
- Performing Operations with Integers
- Understanding Absolute Value
- Performing Operations with Exponents
- Performing Operations with Negative Exponents
- Understanding Radicals
- Performing Operations with Rational Exponents
- Simplifying Algebraic Expressions
- Performing Radical Operations
- Applying Rules of Equations
- Solving Single Variable Equations
- Discovering Arithmetic Series & Sequences
- Solving Single Variable Inequalities
- Solving Absolute Value Equations & Inequalities
- Applying an Understanding of Slope
- Writing Linear Equations
- Graphing Linear Equations
- Graphing Linear Inequalities
- Solving Systems of Linear Equations
- Solving Systems of Linear Inequalities

- Performing Operations with Polynomials
- Factoring Polynomials
- Solving Quadratic Equations
- Solving Quadratic Inequalities
- Representing Quadratics
- Performing Operations with Complex Numbers
- Performing Operations with Functions
- Determining Inverse Functions
- Performing Operations with Rational Expressions
- Representing & Solving Exponential Equations
- Discovering Geometric Series and Sequences
- Performing Operations with Logarithms

GRADING

This is a pass/fail course. Students are required to complete all 15 formative and 5 summative assessments with an overall course average of 70% or better.