

# MATH-106: COLLEGE ALGEBRA

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**Effective Term**

Fall 2026

**CC Approval**

12/05/2025

**AS Approval**

12/11/2025

**BOT Approval**

12/18/2025

**SECTION A - Course Data Elements**
**Send Workflow to Initiator**

No

**CB04 Credit Status**

Credit - Degree Applicable

**Discipline**
**Minimum Qualifications**
**And/Or**

Mathematics (Master's Degree)

**Subject Code**

MATH - Mathematics

**Course Number**

106

**Department**

Mathematics

**Division**

Mathematics (MATH)

**Full Course Title**

College Algebra

**Short Title**

College Algebra

**CB03 TOP Code**

1701.00 - Mathematics, General

**CIP Code**

27.0101

**CB08 Basic Skills Status**

NBS - Not Basic Skills

**CB09 SAM Code**

E - Non-Occupational

**Rationale**

This class is no longer part of a pre-calculus series (due to AB 1705). We are making changes to reflect that reality.

## SECTION B - Course Description

### Catalog Course Description

This course provides a college level study of polynomial, rational, radical, exponential, absolute value, and logarithmic functions; systems of equations; theory of polynomial equations and analytic geometry.

## SECTION C - Conditions on Enrollment

### Open Entry/Open Exit

No

### Repeatability

Not Repeatable

### Grading Options

Letter Grade Only

### Allow Audit

Yes

## Requisites

### Prerequisite(s)

Placement as determined by the college's multiple measures assessment process or completion of a course taught at or above the level of intermediate algebra.

### Advisory Corequisite(s)

Students who do not place directly into this course may enroll if they also enroll in the corresponding corequisite course.

## Requisite Justification

### Requisite Description

Non-course Requisite

### Level of Scrutiny

Requisite Established by Statute/Regulation

### Explanation

Requisite to comply with AB 705.

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## SECTION D - Course Standards

### Is this course variable unit?

No

### Units

4.00

### Lecture Hours

54.00

### Activity Hours

36.00

### Outside of Class Hours

126

### Total Contact Hours

90

**Total Student Hours**

216

**Distance Education Approval****Is this course offered through Distance Education?**

Yes

**Online Delivery Methods**

DE Modalities	Permanent or Emergency Only?
Hybrid	Permanent
Online with Proctored Exams	Permanent
Entirely Online	Emergency Only

**SECTION E - Course Content****Student Learning Outcomes**

Upon satisfactory completion of the course, students will be able to:	
1.	Evaluate and simplify polynomial, rational, radical, exponential, absolute value, and logarithmic expressions.
2.	Solve polynomial, rational, radical, exponential, absolute value, and logarithmic equations.
3.	Graph polynomial, rational, radical, exponential, absolute value, and logarithmic equations.
4.	Write mathematical proofs.

**Course Objectives**

Upon satisfactory completion of the course, students will be able to:	
1.	Analyze and investigate properties of functions.
2.	Synthesize results from the graphs and/or equations of functions.
3.	Graph the elementary functions, examine their basic properties, and apply transformations to the graphs of functions.
4.	Recognize the relationship between functions and their inverses graphically and algebraically.
5.	Solve and apply rational, linear, polynomial, radical, absolute value, exponential and logarithmic equations.
6.	Solve linear, nonlinear, and absolute value inequalities.
7.	Solve systems of equations.
8.	Apply techniques for finding zeros of polynomials and roots of equations.
9.	Apply functions and other algebraic techniques to model real world applications.
10.	Analyze conic sections algebraically and graphically.
11.	Use formulas to find sums of finite and infinite series.

**Course Content**

1. Functions including linear, polynomial, rational, radical, exponential, absolute value, logarithmic: definitions, evaluation, domain and range
2. Inverses of functions
3. Algebra of functions
4. Graphs of functions including asymptotic behavior, intercepts and vertices
5. Transformations of quadratic, absolute value, radical, rational, logarithmic and exponential functions
6. Equations including rational, linear, polynomial, radical exponential, absolute value and logarithmic
7. Linear, nonlinear and absolute value inequalities
8. Systems of equations
9. Characterization of the zeros of polynomials
10. Properties and applications of Complex numbers
11. Properties of conic sections
12. Sequences and series including arithmetic, geometric, recursive, subscript notation and sigma notation

## Methods of Instruction

### Methods of Instruction

Types	Examples of learning activities
Activity	Given one method of representing a function (equation, graph, description of transformations) find the other two. Use the graph or equation of a function to find symmetry, domain, range and the intervals of increase, decrease and constant.
Discussion	Meet with your group to discuss possible methods to solve systems of equations, how to select a method, and find the solution.
Lecture	Lecture on properties of functions. Lecture on the methods used to solve absolute value equations and inequalities.
Other	In-class practice problems.

### Online Adaptation

Types	Examples of learning activities
Activity	Given one method of representing a function (equation, graph, description of transformations) find the other two. Use the graph or equation of a function to find symmetry, domain, range and the intervals of increase, decrease and constant.
Discussion	Use your group discussion board to discuss possible methods to solve systems of equations, how to select a method, and find the solution.
Lecture	Watch a recorded lecture on properties of functions. Participate in a Zoom lecture on the methods used to solve absolute value equations and inequalities.
Other	Work in break out rooms or group discussion boards on practice problems.

### Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards  
 Chat Rooms  
 Discussion Boards  
 E-mail Communication  
 Video or Teleconferencing

### Student-Initiated Online Contact Types

Chat Rooms  
 Discussions  
 Group Work

### Course design is accessible

Yes

## Methods of Evaluation

### Methods of Evaluation

Types	Examples of classroom assessments
Exams/Tests	Traditional exams including a final exam. Except in the event of an emergency, exams should be proctored in person.  Exams could include solving rational, polynomial and absolute value equations.  Exams could include graphing transformations of functions.
Quizzes	Quizzes on class material.
Projects	Individual or group projects.
Homework	Homework problems from book.
Other	Additional assessment information: The Mathematics Department maintains a commitment to diverse teaching methods in all courses emphasizing vital quantitative skills and qualitative reasoning ability. To that end, it is expected that sufficient formative assessments will be given to students that in frequency, length and rigor adequately assess both quantitative skills and qualitative reasoning.

## Assignments

### Reading Assignments

Read sections from the textbook, for example:

1. Read the section on Transformations of Functions. Be ready to discuss and work on graphing activities in class.
2. Read the section on solving systems of equations using substitution. Be ready to discuss and work on solving systems in class.

### Writing Assignments

Daily homework exercises from the text. For example:

1. Complete exercises 1 - 15 odd from the section graphing polynomials.
2. Find all requested information and graph the indicated rational functions in exercises 21 - 56 odd from the section on rational functions and their graphs.

### Outside-of-Class Assignments

Other assignments such as research into applications or group projects assigned at instructors' discretion.

## SECTION F - Textbooks and Instructional Materials

### Material Type

Open Educational Resource (OER)

### Author

Jay Abramson, Arizona State University

### Title

College Algebra

### Edition/Version

2nd

### Publisher

OpenStax

### Year

2025

### ISBN #

13: 978-1-951693-41-1

## SECTION G - Diversity, Equity and Inclusivity

### How does your course and/or course outline of record reflect strategies for accommodating and engaging diverse student populations, advancing equitable outcomes, and fostering inclusion for all students?

This course supports diverse student populations through the use of multiple representations of concepts, varied applications, and technology. Strategies may also include collaborative learning, transparent assessment practices, low-cost resources, and opportunities for students to connect course material to their own experiences, fostering equitable outcomes and an inclusive classroom environment.

### Course Codes (Admin Only)

#### CB00 State ID

CCC000601128

#### CB10 Cooperative Work Experience Status

N - Is Not Part of a Cooperative Work Experience Education Program

#### CB11 Course Classification Status

Y - Credit Course

#### CB13 Special Class Status

N - The Course is Not an Approved Special Class

**CB23 Funding Agency Category**

Y - Not Applicable (Funding Not Used)

**CB24 Program Course Status**

Program Applicable

**Allow Pass/No Pass**

No

**Only Pass/No Pass**

No