

Northwest Arkansas Community College
(Science and Mathematics Division)

Discipline Code

MATH

Course Number

1203

Course Title

College Algebra

Catalog Description

An overview of the fundamental concepts of algebra, with an emphasis on functions and equation solving. Functions and equations covered will include (but may not be limited to) absolute value, square root, polynomial, rational, exponential, and logarithmic. Systems of linear equations and inequalities as well as quadratic inequalities will also be covered. Technology will be used throughout the course to supplement and enhance understanding.

Prerequisite/Co-requisite

Co-Requisite: MATH 0112 (Foundations of College Algebra),

or

Prerequisite: MATH 0103 (Intermediate Algebra) or MATH 0214 (Foundations of Algebra: STEM) with a grade of C or better, or appropriate placement scores

Credit Hours

3 credit hours

Contact hours

45 lecture contact hours

Load hours

3 load hours

Semesters Offered

Fall, Spring & Summer

ACTS Equivalent

MATH1103 College Algebra

Grade Mode

A-F

Learning Outcomes

Upon successful completion of MATH 1203 students should be able to do the following, using appropriate vocabulary and incorporating technology where applicable:

- 1) Solve Equations and Inequalities
quadratic equations, radical equations, rational equations, exponential equations, logarithmic equations, systems of linear equations with matrices, quadratic inequalities, systems of inequalities
- 2) Solve Applications
linear, quadratic, exponential, systems of equations
- 3) Analyze Functions and/or their Graphs
transformations of functions, quadratic functions, rational functions, absolute value functions, exponential functions, logarithmic functions, polynomial functions
- 4) Perform Function Operations
arithmetic operations, difference quotient, composition of functions, inverse functions, domain and range of functions, function values

General Education Outcomes Supported

- Students can achieve mathematical literacy.

Standard Practices

Topics list

- Relations and functions and their graphs
- Characteristics and key attributes of functions and their graphs
- Function transformations
- Operations and compositions with functions, including the difference quotient
- Inverse functions and graphs
- Slopes and rates of change
- Equations of lines
- Linear function applications
- Piecewise functions and graphs
- Systems of linear equations with matrices
- Systems of linear inequalities
- Quadratic equations
- Characteristics and key attributes of quadratic functions and their graphs
- Quadratic function applications
- Quadratic inequalities
- Characteristics and key attributes of higher-order polynomial functions and their graphs
- Zeros and graphs of higher-order polynomial functions
- Rational equations
- Characteristics and key attributes of rational functions and their graphs
- Radical equations
- Characteristics and key attributes of root functions and their graphs
- Characteristics and key attributes of exponential functions and their graphs
- Characteristics and key attributes of logarithmic functions and their graphs
- Properties of logarithms
- Exponential and logarithmic equations
- Exponential function applications

Assessments

- Each instructor will include a set of departmental final exam questions on their final exam. Approval to include the questions on another end-of-semester assessment tool may be granted if inclusion on the final exam is not possible.
- These questions will be in direct support of the Learning Outcomes. Department-wide results for these questions will be reported when final grades are submitted.
- Results from a subset of these questions will be used in the General Education Outcomes report.

Grading guidelines

- At least 70% of the student's final course grade should come from proctored work.