

Northwest Arkansas Community College  
Division of Science and Mathematics

Course Number and Title

MATH 1203R, College Algebra with Review

Catalog Description

This course covers the same content as Math 1203, but at a slower pace with additional class time for review or supplemental tutoring. In addition, students may be required to spend up to 15 hours (spread throughout the semester) outside of class receiving external tutoring in the math center or another instructor-approved location.

Prerequisites

One of the following:

- A grade of “C” or better in MATH 0214 (Foundations of Algebra: STEM), MATH 0103 (Intermediate Algebra), MATH 0073 (Algebra II), or course equivalent to one of these.
- Appropriate score on the ACT Math section or Accuplacer - Next Generation (see placement chart).

Credit hours/Contact hours/Load hours

3 credit hours, 4 contact hours, 3.67 load hours

Target Audience/Transferability

This course is equivalent to College Algebra (MATH 1203), but specifically designed for those students who need or prefer a slower pace and additional support. Any student who hasn't taken a math course recently or who earned a “C” in the prerequisite course may benefit from taking MATH 1203R. Additionally, those who have previously taken MATH 1203 but were unsuccessful, are strongly encouraged to enroll in MATH 1203R.

Student Learning Outcomes

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

- 1) Recognize and perform operations (evaluation, arithmetic, composition, finding inverses) with functions. Graph, apply transformations, and analyze basic (identity, absolute value, reciprocal, squaring/cubing, square root/cube root) functions.
- 2) Construct and analyze the equations and graphs of linear (including piecewise) and quadratic functions and solve related equations and inequalities.
- 3) Construct and analyze the equations and graphs of polynomial functions of degree three and higher and solve related equations.
- 4) Construct and analyze the equations and graphs of rational and radical functions and solve related equations.
- 5) Construct and analyze the equations and graphs of exponential and logarithmic functions and solve related equations.
- 6) Solve systems of linear equations by Gaussian or Gauss-Jordan elimination using matrices and graph the solution to a system of linear inequalities in two variables.
- 7) Solve application problems related to the above outcomes.

Topics

1. Recognizing relations and functions
2. Graphing relations and functions
3. Using and applying function transformations
4. Identifying characteristics and key attributes of functions and their graphs
5. Writing equations of lines
6. Understanding and applying slope and rate of change
7. Solving linear equations and inequalities

8. Performing operations and compositions with functions
9. Performing operations with complex numbers
10. Solving quadratic equations and inequalities
11. Finding the zeros and factored form of polynomial functions
12. Finding inverse functions
13. Applying the properties of logarithms
14. Solving radical and rational equations
15. Solving exponential and logarithmic equations
16. Solving systems of linear equations and inequalities
17. Using models and solving applications
18. Using technology to aid in solving certain problems

#### Forms of Assessment

Each instructor will include a set of departmental final exam questions on his or her final exam. These questions will be in direct support of the Student Learning Outcomes. The questions need to represent at least 10% of each student's overall grade in the course and will be graded according to a standard grading rubric. Department-wide results for these questions will be reported when final grades are turned in.