

Texas High School Algebra 2 Syllabus

Instructor: Mr. Edwards

Contact Information: redwards@nordheimisd.org

Room Number: 307

Course Overview

Algebra 2 builds on the concepts learned in Algebra 1 and delves deeper into algebraic structures and functions. The course is aligned with the Carnegie Math curriculum and emphasizes complex problem-solving, critical thinking, and real-world applications. Students will explore advanced algebraic concepts, functions, and their applications.

Course Objectives

By the end of this course, students will be able to:

1. Solve and analyze quadratic, polynomial, rational, exponential, and logarithmic functions.
2. Understand and apply concepts of complex numbers.
3. Explore and solve systems of equations and inequalities.
4. Utilize matrices and determinants in solving real-world problems.
5. Analyze sequences and series and apply them in various contexts.

Required Materials

- Textbook: Carnegie Math Algebra 2 (Provided)
- Notebook Paper
- Folder with pocket and brads
- Scientific Calculator (TI-84 or similar) (Provided)

Course Content

1. Quadratic Functions

- **Solving Quadratic Equations:** Methods for solving quadratic equations including factoring, completing the square, and using the quadratic formula.
- **Graphing Quadratic Functions:** Analyzing and graphing quadratic functions in various forms.
- **Applications:** Real-world problems involving quadratic functions.

2. Polynomial Functions

- **Polynomial Operations:** Adding, subtracting, multiplying, and dividing polynomials.
- **Factoring Polynomials:** Techniques for factoring polynomials, including special products and synthetic division.
- **Graphing Polynomial Functions:** Analyzing the behavior of polynomial functions and their graphs.

3. Rational Functions

- **Operations with Rational Functions:** Adding, subtracting, multiplying, and dividing rational functions.
- **Solving Rational Equations:** Techniques for solving equations involving rational functions.
- **Graphing Rational Functions:** Analyzing and graphing rational functions, including asymptotes and intercepts.

4. Exponential and Logarithmic Functions

- **Exponential Functions:** Understanding and graphing exponential functions and their properties.
- **Logarithmic Functions:** Introduction to logarithms, properties, and solving logarithmic equations.
- **Applications:** Real-world applications involving exponential growth and decay.

5. Systems of Equations and Inequalities

- **Solving Systems:** Methods for solving systems of linear equations and inequalities using various techniques.
- **Applications:** Real-world problems involving systems of equations and inequalities.

6. Complex Numbers

- **Introduction to Complex Numbers:** Understanding the arithmetic of complex numbers and their properties.

- **Solving Equations with Complex Solutions:** Applying complex numbers to solve equations.
- **Polar Form and Complex Plane:** Representing complex numbers in polar form and on the complex plane.

7. Matrices and Determinants

- **Matrix Operations:** Performing operations with matrices including addition, subtraction, and multiplication.
- **Determinants and Inverses:** Understanding and calculating determinants and matrix inverses.
- **Applications:** Solving systems of equations using matrices.

8. Sequences and Series

- **Arithmetic Sequences and Series:** Analyzing and solving problems involving arithmetic sequences and series.
- **Geometric Sequences and Series:** Understanding and solving problems involving geometric sequences and series.
- **Applications:** Real-world applications of sequences and series.

Grading Policy

Daily Grades (60%):

- **Homework (30%):** Homework assignments will be given regularly and must be completed on time. Late work will incur a penalty unless prior arrangements are made.
- **Classwork (30%):** Participation in class activities, group work, and daily exercises will be assessed.
- **Recording:** There will be a minimum of 6 daily grades recorded every 6 weeks.

Test Grades (40%):

- **Tests (40%):** There will be three major tests each grading period, covering the material studied. Each test will contribute to the overall grade.
- **Recording:** There will be a minimum of 3 test grades recorded every 6 weeks.

Attendance and Participation

- Regular attendance is crucial for success in Algebra 2. Excessive absences may impact understanding of the material and overall grade.
- Active participation in class discussions and activities is expected. This will contribute to your daily grades.

Classroom Policies

- **Respect:** Respect for classmates, instructor, and classroom materials is required.
- **Electronics:** Phones and other electronic devices should be silenced and put away unless instructed otherwise.
- **Late Work:** Assignments turned in late will be penalized unless a valid excuse is provided.

Support and Resources

- **Tutoring:** Extra help is available during scheduled times or by appointment. Additional tutoring sessions may be scheduled as needed.

Important Dates

- **End of First Six Weeks:** Sept. 19, 2025
- **End of Second Six Weeks:** Oct. 31, 2025
- **End of Third Six Weeks:** Dec. 19, 2025
- **End of Fourth Six Weeks:** Feb. 13, 2026
- **End of Fifth Six Weeks:** Apr. 2, 2026
- **End of Sixth Six Weeks:** May 20, 2026

Note: This syllabus is subject to change based on the needs of the class and other factors. Any changes will be communicated promptly.