

# Algebra II

2009-2010

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Welcome to the 2009-2010 school year! I am excited and looking forward to working with each one of you this year. I expect everyone to be successful and I will be glad to assist you in any way possible. Algebra II is a continuation of the study of mathematics begun in both Algebra I and Geometry. It marks the end of the required portion of the mathematics curriculum and may be the foundation for further studies in math. In Algebra II we will review and expand upon topics from Algebra I, particularly simplifying expressions, solving equations, and graphing. We will explore several new kinds of functions and look at some of the applications of algebra to everyday situations.

Students in Algebra II should have successfully completed Algebra I and Geometry. *Note: this class does **not** meet the prerequisites for the Pre-Calculus or AP Statistics courses.*

## Materials:

*Algebra 2: Applications, Equations, Graphs*, by Larson, Boswell, Kanold, and Stiff, published by McDougal Littell, 2001.

Three-ring binder to organize notes, handouts, homework and quizzes.

TI-83 Plus, TI-84 Plus graphing calculator.

Paper, graph paper, ruler with inches and centimeters, pencil (mechanical is preferred), eraser.

## Sequence:

### Semester 1

Equations and Inequalities  
Linear Equations and Functions  
Systems of Linear Equations  
and Inequalities  
Matrices  
Quadratic Functions

### Semester 2

Polynomial Expressions and Functions  
Power Functions  
Exponential and Logarithmic Functions  
Rational Equations and Functions  
Sequences and Series  
Probability

## Grading Policy:

70% of each semester grade will be based on a percentage of total points of tests (usually 100 points each), quizzes (30- 50 points each), homework assignments (2 points each), and class participation.

**30% of each semester grade will be based on a comprehensive final exam.**

# Algebra II Course Benchmarks

Upon successfully completing Algebra II, students will be able to...

- Simplify algebraic expressions [1]
- Solve linear equations and inequalities [1]
- Solve absolute value equations and inequalities [1]
- Graph linear equations and inequalities [2]
- Graph absolute value equations [2]
- Graph scatter plots, find lines of best fit, and identify correlation coefficients given data sets [2]
- Solve systems of linear equations and inequalities by graphing, substitution, and elimination [3]
- Simplify expressions with matrices [4]
- Write and solve matrix equations representing systems of linear equations [4]
- Solve quadratic equations with real and complex solutions by factoring, completing the square, and using the quadratic formula [5]
- Simplify expressions with complex numbers [5]
- Understand the connections between the graphs of absolute value and quadratic functions [2,5]
- Graph quadratic functions and identify characteristics [5]
- Understand the relationship between solutions of an equation, factors of an expression, zeros of a function, and x-intercepts of a graph [5]
- Simplify polynomial expressions, including addition, subtraction, and multiplication [6]
- Factor polynomials using various methods [6]
- Simplify expressions with rational exponents [7]
- Solve equations involving rational exponents and radicals [7]
- Understand function notation, composition of functions, and the inverse of a function [7]
- Simplify logarithmic and exponential expressions [8]
- Solve problems involving exponential growth or decay, including population growth and compound interest [8]
- Solve logarithmic and exponential equations [8]
- Graph logarithmic and exponential equations [8]
- Simplify rational expressions with monomial and polynomial denominators [9]
- Simplify complicated rational expressions including complex fractions and expressions with rational exponents [9]
- Solve rational equations [9]
- Find the next term and  $n^{\text{th}}$  term of arithmetic and geometric sequences [11]
- Find the finite or infinite sums of arithmetic and geometric series, if they exist [11]
- Use summation notation to represent series [11]
- Understand the Fundamental Counting Principle and be able to compute numbers of permutations and combinations [12]
- Find theoretical, experimental, and geometric probabilities [12]
- Find the probability of compound events and independent and dependent events [12]

## Class Information and Expectations

Attendance: Every day is important! Your success in Algebra I is directly related to how often you are present. In the event that you are absent, it is your responsibility to get the work and notes that you missed. If you are on campus during any portion of the school day, your homework for that day will be due and any scheduled quizzes or tests must be taken.

Tardiness: It is your responsibility to get to class on time with all of your class supplies. You are tardy if you are not in your seat with your homework on the desk when class begins

Office Hours: If you need to talk with me *for any reason* you should drop in at the beginning of break or lunch, or after school. If you are having difficulties with a topic, you should see me **IMMEDIATELY**. **Do not wait for the morning of a test!** I am available at break and lunch each day. I am also available for one hour after school.

Homework: Homework is assigned on a daily basis. Homework is due AT THE BEGINNING OF CLASS on the day after the assignment is given. Homework assignments will also be listed on the class web page. Late homework assignments will be accepted up to one week after the assignment was originally due. You may turn in two late homework assignments each quarter with no penalty. After these two late assignments, late work will be awarded half credit.

All regular homework assignments must include the following elements:

- Your name
- Assignment Name (including the page number and problems)
- Each assigned problem must include:
  - a. the original problem and any picture or graph that is associated with it (you may paraphrase long word problems)
  - b. sufficient work written in a logical, neat and organized way
  - c. your proposed solution

Check the odd-numbered problems in the back of the book before class. Use a red pen to show that the work has been corrected. **Try Hotmath.com for extra help on homework problems. The password is... xe63070de.** Ask questions about your homework the following day. Corrections are made during the first ten minutes of class and it is important to pay attention to this part of the class. If an assignment is missing a significant number of problems from the assignment, then the assignment will be regarded as incomplete and you will earn no credit for the assignment. **Each problem on the assignment should be attempted.**

Technology:

- Graphing calculators will be used extensively for in-class work. Calculators may be used on all homework assignments unless otherwise specified.
- Cell phones and other technology may never be used in class and I highly recommend turning off cell phones and other electronic devices while completing homework. **Unauthorized use in class will result in a detention.**

Participation: Students are expected to be participants in the learning process. Your contribution to the environment - positive or negative - will be considered when the semester grade is calculated. Participation includes, but is not limited to, making relevant observations, asking questions, remaining on task, having your notebook up-to-date, being civil and helpful.

Make-Ups: Generally, students with extended absence for illness have as many days to make up an exam. Quizzes that have been graded and returned cannot be made-up, and a student who misses a quiz will be given a blank copy for study purposes without penalty. Three missed evaluations is excessive however, and will result in a penalty.

- A student who is absent the day before a test, but present when the test was scheduled, should be prepared to take the test with the class.
- A student who is absent on the test day only should be prepared to take the test on the day she returns.
- Any extenuating circumstances must be discussed with me PRIOR to the beginning of class. Please feel free to use e-mail to contact me.

Learning: Everyone is capable of learning the mathematics taught in this course, though perhaps to a different depth. Learning takes time, patience, practice and willingness to learn from mistakes. For this class, effort and perseverance will be more important than talent.

Grading: You are encouraged to regularly check your grade in this class online. Anytime the cumulative percent falls below 70 you should consider it cause for serious concern. Most chapters will consist of 2 quizzes (30 - 50 points) and 1 exam (100 points). Standard percentages are used to convert to letter grade:

A : 93– 100%	B+: 87 – 89%	C+: 77 – 79%	D+: 67 – 69%	F: < 59%
A–: 90 – 92%	B : 83 – 86%	C : 73– 76%	D : 63– 66%	
	B–: 80 – 82%	C–: 70 – 72%	D–: 60 – 62%	

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**PARENT/STUDENT ACKNOWLEDGEMENT:**

We, \_\_\_\_\_ (print **student** name) and \_\_\_\_\_ (print **parent/guardian** name) have read and acknowledge the rules and guidelines set forth in the Algebra II syllabus.

Student signature: \_\_\_\_\_ Date: \_\_\_\_\_

Parent signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please read, sign and return by **Wednesday, August 26<sup>th</sup>**.