

Course Syllabus

Syllabus - Algebra 2B

Welcome to Algebra 2B. During this 8 unit course students will cover topics of the second semester of an Algebra 2 course. Students will cover radical functions, rational exponents, exponential and logarithmic functions, rational functions, quadratic relations, sequences and series, as well as probability and statistics.

Course Objectives

At the end of this course students will be able to:

1. Work with roots beyond square roots.
2. Add, subtract, multiply, and divide radical expressions.
3. Solve radical equations, and graph translations of radical functions and their inverses.
4. Use exponential functions to model real-world data.
5. Graph exponential and logarithmic functions and their inverses.
6. Solve exponential and logarithmic equations.
7. Use and graph inverse variation functions.
8. Identify properties of rational functions.
9. Simplify rational expressions and solve rational equations.
10. Use conic sections to model real-world problems.
11. Graph parabolas, circles, ellipses, and hyperbolas.
12. Identify the equation of a specific conic section by completing the square.
13. Identify and generate arithmetic and geometric sequences.
14. Evaluate arithmetic and geometric series.
15. Use rectangles to approximate the area under a curve.
16. Make and use a probability distribution to conduct a simulation.
17. Use formulas and tree diagrams to find the probability of an event.
18. Use measures of central tendency and measures of variation to compare data.

The curriculum is based on the California State Board of Education Mathematics Content Standards, which can be viewed at:
<http://www.cde.ca.gov/be/st/ss/mthalgebra2.asp> and the National Council of Teachers of Mathematics Standards for School Mathematics, which are listed here:

1. Number and Operations
2. Algebra
3. Geometry
4. Measurement
5. Data Analysis and Probability
6. Problem Solving
7. Reasoning and Proof
8. Communication
9. Connections
10. Representation.

Course Materials

The course uses Prentice Hall Mathematics, Algebra 2 textbook and supporting materials. Students will need to have a copy of this textbook and/or web access to the interactive textbook in order to complete this course. A word program, Equation Editor, and e-mail access for submitting certain assignments. Additional materials the student will need include a folder, or similar method of organizing work, with an adequate supply of ruled and/or graph paper and pencils, and a calculator or graphing calculator. A graphing calculator is strongly suggested, especially if you plan on going further in your math career.

Assessment

The use of a calculator is encouraged as an aid only, not to solve a problem for the student..

It is also recommended that students have a computer microphone to communicate in live verbal chats when applicable.

During unit 1, students will take a Learning Outcomes Assessment. This pre-test will help the student and instructor determine how to focus efforts to successfully complete this course. Each week students will be expected to do the required reading, explore the topic lectures, complete the assignments, attend at least one of the two one-hour chat sessions, answer questions on the discussion board, and demonstrate understanding of the weeks material through a test. At the end of unit 4, students will submit the first of two projects of their choice from projects 1-3. At the end of unit 7, students will submit the second project of their choice from projects 4-6. At the end of the course students will also complete a comprehensive final exam. The following is the point distribution that will determine a student's course grade:

Assignments	24%	225 points (45 assignments - 5 points each)
Chats	4%	40 points (8 chats - 5 points each)
Discussion	12%	120 points (40 questions - 3 points each)
Projects	20%	200 points (2 projects - 100 points each)
Tests	30%	300 points (6 tests - 50 points each)
Final Exam	10%	100 points (50 questions - 2 points each)

***percentages are not whole numbers, they are approximations.

Students will be working independently as well as interacting with their classmates and their instructor. Students are encouraged to keep their folder organized and easily accessible for completing work, participating in discussions, preparing for tests, and working on projects. Students will need to properly log in to be able to submit assignments and communicate using the chat tool and discussion board. Students must attend one of the two set chat times, but may organize their own time to submit all assignments, discussion responses, and tests by the end of each week. Due to the level of this class, no late work will be accepted. Active participation in this course involves the following each week: attending one scheduled chat session, exploring lecture topics, doing required reading, completing and submitting assignments, submitting discussion responses and checking/responding to classmate and instructor responses on the discussion board, and taking and submitting a test. Students should expect to spend on average 15 hours a week to complete this course. Specific details of how to log in properly, due dates, scheduled chat times, and instructor contact information will be made available to the student upon registration for the course.

Parents are strongly encouraged to follow their student's progress throughout this course. Parents can preview lessons, check their child's work and view his/her grade. Parents will be notified periodically during the course of their child's progress. Parents and students may contact the instructor at any time and receive a response within 24 hours.

We look forward to a great experience with you, and we hope you enjoy your Algebra 2B class!

Frequently Asked Questions

What is this course about?

Welcome to Algebra 2B. During this 8 unit course students will cover topics of the second semester of an Algebra 2 course. Students will cover radical functions, rational exponents, exponential and logarithmic functions, rational functions, quadratic relations, sequences and series, as well as probability and statistics.

What will I learn in this course?

At the end of this course students will be able to:

1. Work with roots beyond square roots.
2. Add, subtract, multiply, and divide radical expressions.
3. Solve radical equations, and graph translations of radical functions and their inverses.
4. Use exponential functions to model real-world data.
5. Graph exponential and logarithmic functions and their inverses.
6. Solve exponential and logarithmic equations.
7. Use and graph inverse variation functions.
8. Identify properties of rational functions.
9. Simplify rational expressions and solve rational equations.
10. Use conic sections to model real-world problems.
11. Graph parabolas, circles, ellipses, and hyperbolas.
12. Identify the equation of a specific conic section by completing the square.
13. Identify and generate arithmetic and geometric sequences.
14. Evaluate arithmetic and geometric series.
15. Use rectangles to approximate the area under a curve.
16. Make and use a probability distribution to conduct a simulation.
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What are the pre-requisites for this course?

Before taking Algebra 2B, students should have completed Algebra 2A or a similar course. They should be comfortable with the algebra tools that they obtained in Algebra 1: functions, equations, graphs, linear systems, and quadratics, as well as what they learned in algebra 2A: more complex functions, equations, and graphs, linear systems in 3-variables, matrices, polynomials and polynomial functions, absolute value functions, radical functions, and rational exponents.

Which course should I take after this course?

After successful completion of Algebra 2B, students should move on to Pre Calculus.

What is the structure of this course?

Students will be working independently as well as interacting with their classmates and their instructor. Students are encouraged to keep their folder organized and easily accessible for completing work, participating in discussions, preparing for tests, and working on projects. Students will need to properly log in to be able to submit assignments and communicate using the chat tool and discussion board. Students may be required to attend chat times if applicable, but may organize their own time to submit all assignments, discussion responses, and tests by the end of each unit.

What materials will I need for this course?

The course uses Prentice Hall Mathematics, Algebra 2 textbook and supporting materials. Students will need to have a copy of this textbook and/or web access to the interactive textbook in order to complete this course. Additional materials the student will need include a folder, or similar method of organizing work, with an adequate supply of ruled and/or graph paper and pencils, and a calculator or graphing calculator.

What types of assessments are there in this course?

At the beginning of Algebra 2B the students will take a pre-test, the outcome of which will help determine how they should focus their efforts to successfully complete the course. Each unit there after, the students will take a test to demonstrate their understanding of the weeks material. At the end of the course the students will take a comprehensive final exam.

Through out the course students will complete two projects applying the concepts they learned in the Algebra 2B course.

What do I need to do to be successful in this course?

Active participation in this course involves the following for each unit: attending one scheduled chat session if applicable, exploring lecture topics, doing required reading, completing and submitting assignments, submitting discussion responses and checking/responding to classmate and instructor responses on the discussion board, and taking and submitting a test. Students should expect to spend on average 15 hours a week to complete this course.

NUVHS Expected Schoolwide Learning Results (ESLRs)

It is anticipated that NUVHS students will be:

Engaged Learners

1. Demonstrate self-directed learning skills such as time management, and personal responsibility through the completion of course requirements
2. Develop an understanding of their own preferred learning styles to enhance their overall academic potential
3. Incorporate effective and relevant internet and multimedia resources in their learning process to broaden their knowledge base

Critical Thinkers

1. Effectively analyze and articulate sound opinions on a variety of complex concepts
2. Illustrate a variety of problem-solving strategies that strengthen college preparation and workforce readiness
3. Formulate a framework for applying a variety of technology and internet-based research to enhance information literacy and collaborative thinking

Effective Communicators

1. Demonstrate awareness and sensitivity to tone and voice in multiple forms of communication
2. Express concepts and ideas in a variety of forms
3. Enhance communication skills through the use of media rich or other technology resources

Global Citizens

1. Appreciate the value of diversity
2. Understand the range of local and international issues facing today's global community
3. Demonstrate awareness of the importance of cultural sensitivity and social responsibility in the 21st century