

Course Description

A. COVER PAGE

<p>1. Course Title Algebra 2 -S</p> <p>2. Transcript Title / Abbreviation Algebra 2 -S</p> <p>3. Transcript Course Code / Number ALG-S</p> <p>4. School Bay Area School of Independent Study (BASIS)</p> <p>5. District</p>	<p>9. Subject Area</p> <p><input type="checkbox"/> History/Social Science</p> <p><input type="checkbox"/> English</p> <p><input checked="" type="checkbox"/> Mathematics</p> <p><input type="checkbox"/> Laboratory Science</p> <p><input type="checkbox"/> Language other than English</p> <p><input type="checkbox"/> Visual & Performing Arts</p> <p><input type="checkbox"/> College Prep Elective</p>
<p>6. City Newark</p>	<p>10. Grade Level(s) 11th</p>
<p>7. School / District Web Site www.basischarter.org</p>	<p>11. Seeking "Honors" Distinction?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>8. School Course List Contact</p> <p>Name: Leslie Nilson</p> <p>Title/Position: High School Counselor</p> <p>Phone: 510-687-9111</p> <p>E-mail: lnilson4basis@aol.com</p>	<p>12. Unit Value</p> <p><input type="checkbox"/> 0.5 (half year or semester equivalent)</p> <p><input checked="" type="checkbox"/> 1.0 (one year equivalent)</p> <p><input type="checkbox"/> 2.0 (two year equivalent)</p> <p><input type="checkbox"/> Other: _____</p>
<p>13. Was this course previously approved by UC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If yes, check all that apply:</p> <p><input type="checkbox"/> Course reinstated after removal within 3 years. Year removed from list? _____</p> <p style="padding-left: 40px;">Same course title? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p style="padding-left: 40px;">If no, previous course title? _____</p> <p><input type="checkbox"/> Identical course approved at another school in same district. Which school? _____</p> <p style="padding-left: 40px;">Same course title? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p style="padding-left: 40px;">If no, course title at other school? _____</p> <p><input type="checkbox"/> Alternative course title for course with identical content at this school</p> <p style="padding-left: 40px;">Title of previously-approved identical course: _____</p> <p><input type="checkbox"/> Advanced Placement (AP) or International Baccalaureate (IB) course</p> <p><input type="checkbox"/> Approved UC College Prep (UCCP) Initiative course</p> <p><input type="checkbox"/> Approved P.A.S.S. course</p> <p><input type="checkbox"/> Approved ROP/C course. Name of ROP/C? _____</p> <p><input type="checkbox"/> Other. Explain: _____</p>	
<p>14. Is this course modeled after an UC-approved course from another school <u>outside</u> your district? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If so, which school(s)?</p>	

15. Pre-Requisites

A grade of C or better in Algebra 1 CP-S.

16. Co-Requisites

None

17. Brief Course Description

This course is the second in the series of Saxon textbook courses. The three courses are Algebra 1 CP-S, Algebra 2-S, and Geometry w/ Advanced Algebra and are to be taken consecutively.

The course is an integrated course based on the standards set by the State of California.

This is a course that expands on the basic algebraic concepts involved in solving equations and inequalities, factoring polynomials, graphs, exponents, and solving quadratic equations. It examines quadratic, logarithmic, and exponential functions, the application of functions to real world problems, probability, trigonometric functions, and complex numbers. In addition, the following geometric concepts are covered: vertical angles, interior and exterior angles, angles in circles, chords and arcs in circles, quadrilaterals, circumscribed and inscribed angles, special right triangles, basic constructions, congruence and proofs.

B. COURSE CONTENT

Please refer to instructions

18. Course Goals and/or Major Student Outcomes

This discipline complements and expands the mathematical content and concepts of algebra I.

1.0 Students solve equations and inequalities involving absolute value.

2.0 Students solve systems of linear equations and inequalities (in two or three variables) by substitution, with graphs, or with matrices.

3.0 Students are adept at operations on polynomials, including long division.

4.0 Students factor polynomials representing the difference of squares, perfect square trinomials, and the sum and difference of two cubes.

5.0 Students demonstrate knowledge of how real and complex numbers are related both arithmetically and graphically. In particular, they can plot complex numbers as points in the plane.

6.0 Students add, subtract, multiply, and divide complex numbers.

7.0 Students add, subtract, multiply, divide, reduce, and evaluate rational expressions with monomial and polynomial denominators and simplify complicated rational expressions, including those with negative exponents in the denominator.

8.0 Students solve and graph quadratic equations by factoring, completing the square, or using the quadratic formula. Students apply these techniques in solving word problems. They also solve quadratic equations in the complex number system.

9.0 Students prove simple laws of logarithms.

10.0 Students understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

11.0 Students know the laws of fractional exponents and understand exponential functions.

12.0 Students use the definition of logarithms to translate between logarithms in any base.

13.0 Students use combinations and permutations to compute probabilities.

14.0 Students solve problems involving functional concepts, such as composition, defining the inverse function and performing arithmetic operations on functions.

15.0 Students prove the Pythagorean theorem.

16.0 Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles.

17.0 Students know and are able to use angle and side relationships in problems with special right triangles, such as 30° , 60° , and 90° triangles and 45° , 45° , and 90° triangles.

18.0 Students prove basic theorems involving congruence and similarity.

19.0 Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.

20.0 Students compute the volumes and surface areas of prisms, pyramids, cylinders, cones, and spheres; and students commit to memory the formulas for prisms, pyramids, and cylinders.

21.0 Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.

22.0 Students perform basic constructions with a straightedge and compass.

19. Course Objectives

After completing this course, students will have expanded their ability to solve equations and inequalities, factoring polynomials, graphs, and exponents, and solving quadratic equations. Students will further develop the ability to perform quadratic, logarithmic, and exponential functions. Students will understand the real-world applications of algebra and its concepts. This course integrates the geometry concepts of congruence and proof, circles, quadrilaterals, special right triangles, and angle properties.

20. Course Outline

- Linear Equations and Inequalities:
 - Absolute value
 - Two or three variables, solved
 - Word problems: equations and inequalities in two and three variables and two linear equations in two variables.
- Polynomials:
 - All operations, including long division
 - Difference of squares, perfect square trinomials
 - Polynomial denominators, including those with negative exponents
- Quadratic Equations:
 - Solve by factoring, completing the square, or using the quadratic formula
 - Quadratic equations in the complex number system
 - Word problems
- Complex Numbers
 - Relationship between real and complex numbers, arithmetically & graphically
 - Plotting as points in a plane
- Logarithms:
 - Prove simple laws of logarithms
 - Simplify logarithmic numeric expressions and identify their approximate values.
- Circles
- Probability:
 - Combinations and permutations
- Word Problems:
 - Rate Problems, work problems, percent mixture problems.
- Congruent Triangles
 - Theorems based on congruent triangles
 - Proofs
- Quadrilaterals
 - Parallelograms
 - Special Quadrilaterals
- Circles
 - Arcs and Chords
 - Angles and Segments
- Constructions and Loci
 - Basic construction and locus
- Areas of Plane figures
 - Areas of Polygons
 - Circles
- Areas and volume of solids
 - Prisms, Pyramids, Cylinders and Cones

21. Texts & Supplemental Instructional Materials

Algebra 2 An Incremental Development

Saxon, co. 2001

22. Key Assignments

- Unit by Unit problem sets
- End of Chapter tests
- Finals required at mid-term and end of year

23. Instructional Methods and/or Strategies

Instruction may include the following:

- Lecture/Demonstration
- Discussion
- Text Reading and Practices
- Personal Tutoring
- CD Rom
- Internet Research

24. Assessment Methods and/or Tools

Assessment tools include the following, but are not limited to:

- Monthly review of student work by the Independent Study Teacher.
- Chapter and Unit tests and examinations.
- Student grades on text practices and standardized tests
- Written state examinations
- Oral communication with Independent Study Teacher.
- Final Examination

C. HONORS COURSES ONLY

Please refer to instructions

25. Indicate how this honors course is different from the standard course.

D. OPTIONAL BACKGROUND INFORMATION

Please refer to instructions

26. Context for Course (optional)

27. History of Course Development (optional)