COURSE PROFICIENCY OUTLINE

ALGEBRA I – 2302

College Prep 5 Credits

Purpose

This course serves to satisfy one of the prerequisites for college and secondly, as a foundation for Geometry, Algebra II, and other higher level mathematical subjects that the student may choose to take.

Algebra is the language through which most of mathematics is communicated, and therefore, is a fundamental lifetime skill. Algebra I makes the transition from the specifics of arithmetic to the generalizations of higher mathematics. Students should learn to use the calculator as a tool for processing data and performing calculations to investigate and solve problems where appropriate.

I. New Jersey Core Curriculum Standards for Mathematics
- 4.1 Number and Numerical Operations
- 4.2 Geometry and Measurement
- 4.3 Patterns and Algebra
- 4.4 Data Analysis, Probability, and Discrete Mathematics
- 4.5 Mathematical Processes

II. Content Clusters Unit 1 - Expressions and Equations Unit 2 - Linear Functions Unit 3 - Polynomials and Nonlinear Functions Unit 4 - Radical and Rational Functions Unit 5 - Data Analysis

III. Student Outcomes Unit 1 - Expressions and Equations (4.1 A,B,C; 4.2 A; 4.3 C,D; 4.5 A,B,C,D,E) Students will be able to:

1 Understand the concept and use of variables
2 Classify and represent numbers in a variety of equivalent forms (integers, fractions, decimals, percent, square root, and scientific notation)
3 Perform operations using real numbers
4 Formulate, simplify and evaluate algebraic expressions
5 Write and understand the process of solving linear equations
6 Analyze and interpret data using tables and graphs

Unit 2 - Linear Functions (4.1 A,B; 4.2 A,B,C; 4.3 A,B,C,D; 4.5 A,B,C,D,E,F) Students will be able to:

1 Represent a linear relationship as points on a coordinate plane and as an equation representing a line
2 Transform figures on a coordinate plane
3 Represent and analyze linear relationships among a table of values, equations, and graphs including the concepts of slope and intercepts
4 Extend knowledge of linear graphing to inequalities and systems of equations using elimination, substitution or graphing.

Unit 3 - Polynomials and Nonlinear Functions
(4.1 A,B,C; 4.2 A,C; 4.3 B,C,D; 4.5 A,C,D,E,F) Students will be able to:

1 Perform operations involving polynomials and monomials
2 Perform various methods of factoring of integers, monomials, and polynomials
3 Solve quadratic equations using the quadratic formula and graphing.

Unit 4 - Radical and Rational Functions (4.1 A,B,C; 4.2 A,C,E; 4.3 B,C,D; 4.5 E)
Students will be able to:

1 Simplify and perform operations with radical expressions
2 Explore triangles through the Pythagorean Theorem
3 Find the distance between points on a coordinate plane
4 Solve radical equations
5 Divide polynomials

Unit 5 – Data Analysis (4.1 A,B; 4.2 A; 4.3 B,C; 4.4 A,B,C)
Students will be able to:

1 Explore ratios and solve proportions
2 Explore how percents describe growth overtime
3 Analyze data using tables and graphs
4 Solve problems by performing operations using matrices

III. Materials

A. Text: Glencoe Algebra I NJ Student Edition Other books will be used to supplement when necessary.

B. Notebook paper, pencil, and eraser must be provided by the student.

C. Calculators will be provided if necessary.

IV. Evaluation

A. The student will be expected to complete classwork, homework, keep a notebook and take tests and quizzes. These will be checked and reviewed by the teacher.
B. The student will be expected to demonstrate an acceptable level of proficiency in the objectives and content of this course.
C. The student will be expected to demonstrate at all times appropriate classroom behavior such as self-control, respect for others, respect for property and a mature attitude.
D. The student will be expected to adhere to the school rules and regulations for behavior and the district policy for attendance.
E. Students will be required to successfully pass the H.S.P.A. as mandated in the graduation law (N.J.S.A. 6:8-4.2).
F. Students who fail the HSPA examination will be placed in a Basic Skills Math class as required by N.J.S.A. 6:8-4.2. There will be no exceptions to this requirement.
G. The student will be expected to take a comprehensive final exam covering the entire school year's work. This exam will count at 1/5 of the final grade.
H. The final grade represents the teacher's professional judgment of the student's performance and all of the aforementioned activities and/or requirements are included in the evaluative process.

Teachers in every discipline will include opportunities wherein students will reinforce writing skills through homework assignments, classwork activities, and special assignments.

Reviewed and Revised August 2008
Reviewed August 2010
Reviewed August 2011

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