

## •MATHEMATICS DEPARTMENT•

### **PRE-ALGEBRA AB**

Full Year, 1 Credit/Sem.

Course Nos. 201-202

Grade Level: 9,10,11,12

Prerequisite: None

Description: This is the first year of a two-year Algebra sequence. Pre-Algebra AB provides the mathematical background, skills, and thinking processes necessary for the successful completion of Algebra AB for mathematics credit toward graduation. Topics include whole numbers, integers, rational numbers, decimals and their applications, number theory, ratio, proportion, percent, equations, graphing, square roots, and appropriate geometric concepts. This course will provide for the understanding and use of the concepts as well as for their application through appropriate problem-solving situations.

### **ALGEBRA AB**

Full Year, 1 Credit/Sem.

Course Nos. 203-204

Grade Level: 10,11,12

Prerequisite: Pre-Algebra AB

This course counts as mathematics credit.

Description: This is the second year of a two-year Algebra sequence. Passing Algebra and earning four additional mathematics credits is necessary to meet the Core 40 expectations in mathematics for graduation. This is the basic course for the various sciences and all branches of higher mathematics. The course covers symbols and sets, variables and open sentences, negative numbers, equations, inequalities, verbal problems, working with polynomials, factoring, algebraic fractions, graphs, and sentences in two variables. Algebra is a requirement for ALL apprenticeship programs. Additional topics will include irrational numbers, function, variation, and quadratic equations.

### **ALGEBRA 1 AB**

Full Year, 1 Credit/Sem.

Course Nos. 211-212

Grade Level: 9,10,11,12

Prerequisite: None

Description: This is a one-year course that covers the entire Algebra sequence. Passing Algebra and earning four additional mathematics credits is necessary to meet the Core 40 expectations in mathematics for graduation. This is the basic course for the various sciences and all branches of higher mathematics. The course covers symbols and sets, variables and open sentences, negative numbers, equations, inequalities, verbal problems, working with polynomials, factoring, algebraic fractions, graphs, and sentences in two variables. Algebra is a requirement for ALL apprenticeship programs. Additional topics will include irrational numbers, function, variation, and quadratic equations.

### **PRE-ALGEBRA CREDIT RECOVERY A**

One Semester, 1 credit, offered second semester

Prerequisite: Failure in Pre-Algebra A

Description: This is a course designed to help the student recover credit lost in first semester.

### **ALGEBRA CREDIT RECOVERY A**

One Semester, 1 credit, offered second semester

Prerequisite: Failure in any Algebra course during first semester.

Description: This is a course designed to help the student recover credit lost in first semester.

### **HONORS ALGEBRA 1 AB**

Full Year, 1 Credit/Sem.

Course Nos. 221-222

Grade Level: 9

Prerequisite: Minimum C average **required** in 8th grade Pre-Algebra **Students whose future educational or occupational plans include the need for higher level mathematics should take this course. Students planning to receive an Academic Honors Diploma should take this course.**

Description: This is a one-year course that covers the entire Algebra sequence. It includes the study of symbols and sets, variables and open sentences, negative numbers, equations, inequalities, verbal problems, working with polynomials, factoring, algebraic fractions, graphs, and sentences in two variables. Algebra is a requirement for ALL apprenticeship programs. Additional topics will include irrational numbers, function, variation, and quadratic equations. Students whose future educational or occupation plans include the need for higher level mathematics should take this course.

## **GEOMETRY AB**

Full Year, 1 Credit/Sem.

Course Nos. 231-232

Grade Level: 10\*\*, 11, 12

Prerequisite: Algebra AB

\*for grade 9 enrollment, a minimum C average is **required** in 8th grade Algebra I.

\*\*Algebra II may be taken concurrently only if student has a B or better average in Algebra and with teacher recommendation

Description: Geometry, a college preparatory class, is the study of angles, triangles, circles, perpendicular and parallel lines, similar polygons, constructions, coordinate geometry, and areas of polygons and circles. Inductive reasoning and deductive reasoning using formal proofs are used in the study of these topics.

## **HONORS GEOMETRY AB**

Full Year, 1 Credit/Sem.

Course Nos. 233-234

Grade Level: 9\*, 10\*\*, 11, 12

Prerequisite: Algebra AB, C average recommended; \*for grade 9 enrollment, a minimum C average is **required** in 8th grade Algebra I.

\*\*Algebra II may be taken concurrently only if student has a B or better average in Algebra and with teacher recommendation

**Students whose future educational or occupational plans include the need for higher level mathematics should take this course. Students planning to receive an Academic Honors Diploma should take this course.**

Description: Geometry, a college preparatory class, is the study of angles, triangles, circles, perpendicular and parallel lines, similar polygons, constructions, coordinate geometry, and areas of polygons and circles. Inductive reasoning and deductive reasoning using formal proofs are used in the study of these topics.

## **ALGEBRA II AB**

Full Year, 1 Credit/Sem.

Course Nos. 241-242

Grade Level: 10\*, 11, 12

\*Geometry may be taken concurrently only if student has a B or better average in Algebra and with teacher recommendation

Prerequisite: Algebra AB, Geometry AB

Description: Algebra II extends the work of Algebra I by helping the student to gain further skill in working with operations in the real number system, linear functions, polynomials, rational expressions, radicals, and irrational numbers. This course also includes quadratic functions and relations, complex numbers, exponential and logarithmic functions, sequences, series, and matrices.

## **HONORS ALGEBRA 11 AB**

Full Year, 1 Credit/Sem.

Course Nos. 243-244

Grade Level: 10\*, 11, 12

Prerequisite: Geometry AB, minimum C average

\*Geometry may be taken concurrently only if student has a B or better average in Algebra and with teacher recommendation **Students whose future educational or occupational plans include the need for higher level mathematics should take this course. Students planning to receive an Academic Honors Diploma should take this course.**

Description: Algebra II extends the work of Algebra I by helping the student to gain further skill in working with operations in the real number system, linear functions, polynomials, rational expressions, radicals, and irrational numbers. This course also includes quadratic functions and relations, complex numbers, exponential and logarithmic functions, sequences, series, and matrices.

## **TRIGONOMETRY/PRE-CALCULUS AB**

Full Year

1 Credit/Sem.

Course Nos. 251-252

Grade Level: 11, 12

Prerequisite: Geometry AB, Algebra II AB, minimum C average

Description: A thorough study of trigonometry will be included in this course. Trigonometry includes the study of circular functions and their graphs, trigonometric functions, identities, inverse circular functions, solution of right triangles, the law of sines and the law of cosines, applications of the trig functions, and polar coordinates and vectors. Pre-Calculus blends together all of the concepts and skills that must be mastered prior to enrollment in a college-level calculus course. In addition to the trig topics, this course will include the relationship of equations and graphs of linear, quadratic, and parametric equation, theory of equations, and exponential and logarithmic functions.

## **CALCULUS ADVANCED PLACEMENT AB**

Full Year, 1 Credit/Sem.

Course Nos. 261-262

Grade Level: 12

Prerequisites: Algebra I and II AB, Geometry AB, Trigonometry/Analytical Geometry AB, minimum C average recommended

Description: This course includes a review of topics covered in Trigonometry/Pre-Calculus. Additional topics will include limits, continuity, derivatives, definite integrals, and techniques of integration involving rational, trigonometric, and exponential functions. This course will also include applications of the derivative and the integral plus the theory of calculus. Students will take the AP Calculus test after completion of this course. Any student going into a math or science related field should take this course. Students who take the AP exam may be expected to do extra problems outside of the classroom assignments to prepare for the AP test. After school study sessions may be held in preparation for the exam. Each student must have a graphing calculator to complete the AP exam (approximate cost \$80-\$120). There may be a fee of \$70-\$80 for the exam. The Department of Education is presently funding AP Calculus exams. The extent to which the exam funding might continue is dependent on future budget allocations.

## **COMPUTER PROGRAMMING**

One Semester, 1 Credit

Course No. 270

Grade Level: 10, 11, 12

Prerequisite: Algebra I AB, Geometry AB, B average in all math courses recommended

Description: This is an introductory programming course in the Basic language. Students will learn to flow chart and write programs to solve math formulas, calculate payrolls, alphabetize lists of names, find special number characteristics, such as prime numbers, sort data lists, create computer graphics, and animations. This course is designed for the student who has an interest in computers and is capable of more advanced mathematics. A strong mathematical background is essential in learning computer programming. This course does not count toward the math requirement.