

MATHEMATICS

ALGEBRA 1

Grades 8-10

Prerequisites: None

This is the first course in the new three years sequence of college preparatory mathematics. The focal point of this course will be all elements of elementary algebra. Students will also be exposed to such topics as coordinate geometry, measurement, statistical data analysis, right triangle trigonometry, and elementary probability theory. Problem solving techniques in a wide variety of settings will also be introduced throughout the course. Students enrolled in this course will take the Integrated Algebra Assessment in June. The passing of this assessment is a requirement for a Regents diploma.

BASIC ALGEBRA

Grade 9

Prerequisite: None

Basic algebra is an introduction to some of the topics discussed in Integrated Algebra 1, but taught at a slower pace. Topics which will be reviewed are the fundamental operations of addition, subtraction, multiplication, and division of signed numbers along with a review of ratio, proportion, and percent. Topics discussed in the introduction of elementary algebra include the solving and graphical representation of linear equations, operations with polynomial expressions, and factoring. Statistical analysis will also be discussed. Students completing this course are expected to take Integrated Algebra 1 the following year.

ALGEBRA 1A AND ALGEBRA 1B

Grades 9-10

Prerequisite: None

These courses are designed for students who will require two years to complete the requirements needed to be successful on the Integrated Algebra Assessment. Students will enroll in Algebra 1A their freshman year and Algebra 1B their sophomore year. Students enrolled in Algebra 1A will review the fundamental operations of addition, subtraction, multiplication, and division of signed numbers along with a review of ratio, proportion, and percent. Topics discussed in the introduction of elementary algebra include the solving and graphical representation of linear equations, operations with polynomial expressions, and factoring. Statistical analysis will also be discussed. Students enrolled in Algebra 1B will continue their study of elementary algebra, along with a study of measurement, right triangle trigonometry, and elementary probability theory. Various problem solving techniques in a wide variety of settings will be introduced throughout both courses. Students enrolled in Algebra 1B will take the Integrated Algebra Assessment in June of their sophomore year. The passing of this assessment is a requirement for a Regents diploma.

GEOMETRY

Grades: 9-12

Prerequisite: Algebra 1

This is the second course in the three year sequence in college preparatory mathematics. The focal point of this course will be developing deductive reasoning skills through the use of logic as well as formal and informal proof. An intensive study of congruency and similarity of polygons will be conducted along with work with both coordinate and transformational geometry. Area of 2-dimensional figures as well as surface area and volume of 3-dimensional figures will also be discussed. Other topics included in this course include constructions, properties of circles, and the graphing of linear and quadratic functions. Students enrolled in this class will take the Geometry Assessment in June.

BASIC GEOMETRY

Grades: 10-12

Prerequisite: Algebra 1 or Algebra 1B

This course is intended for students who have taken the Integrated Algebra Assessment but need more preparation before taking the Geometry course. This course will cover many of the topics discussed in Geometry, but more informally and with less rigor. This course will place more emphasis on applications of geometric properties and less on proof. The integration of algebra with geometric properties will be evident throughout the course.

REGENTS SEQUENTIAL MATH COURSE III

Grades: 10-12

Prerequisite: Regents Sequential Math Course II

This is the third course of the three year sequence in college preparatory mathematics. It serves as the foundation for all future work in mathematics as it integrates all aspects of intermediate algebra and trigonometry. Heavy emphasis is placed on the study of various types of functions including polynomial functions, trigonometric functions, exponential functions, and logarithmic functions. A study of transformational geometry and the complex number system as well as statistical analysis and probability theory are also part of this course. Students enrolled in this class will take the second Math assessment in June.

ADVANCED PLACEMENT STATISTICS

Grades: 11-12

Prereq: Math Course III R

Credit: 1

This course is intended to prepare students to take the Advanced Placement Exam in Statistics and to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes: Data analysis, planning a study, producing models using probability theory and simulation, and statistical inference. A fee is required for the AP Exam and a school final exam is given. Successful scores can be submitted to colleges for possible credit or advanced placement. Students may also elect to receive college credit through the University in the High School Program.

PRECALCULUS

Grades: 11-12

Prereq: Seq. Math Course III R

Credit: 1

This course is designed for seniors who have completed the three-year sequence in Mathematics and accelerated juniors who expect to take AP Calculus in their senior year. Extensive use of the graphing calculator is included. This course includes:

1. Functions- linear, polynomial, exponential, logarithmic, trigonometric.
2. Systems of Equations- solution algebraically, graphically & using matrices.
3. Inequalities and Linear Programming
4. Conic Sections.
5. Complex Numbers

Students may also elect to receive college credit through the University in the High School Program.

ADVANCED PLACEMENT CALCULUS

Grade: 11 or 12

Prereq: Pre-Calculus and Teacher Recommendation Credit: 1

This course is intended to prepare students to take the Advanced Placement Exam in Calculus. The course consists of work in analytic geometry, calculus and related topics that are comparable to freshman level calculus offered in colleges and universities. The following general topics are covered: function, limits, continuity, the derivative and its applications, the integral and its applications. A fee is required for the AP Exam and a school final exam is also given. Successful scores can be submitted to college for possible credit or advanced placement.

Students may also elect to receive college credit through the University in the High School Program.

STATE ASSESSMENTS IN MATHEMATICS

All regular education students are required to pass either the Integrated Algebra Assessment or the Math Assessment in order to receive a Regents Diploma. Students enrolled in Algebra 1 will take the Integrated Algebra Assessment in June of their freshman year. Students enrolled in Basic Algebra or Algebra 1A/Algebra 1B will take the Integrated Algebra Assessment in June of their sophomore year. Geometry students will take the Geometry Assessment in June of their sophomore year. To receive an Advanced Regents Diploma, students must either pass the second Math assessment which is given in June to Course III students or all 3 assessments in Integrated Algebra, Geometry, and Intermediate Algebra and Trigonometry which are given in June at the end of each course.