

## Mathematics Department:

**310Z Basic Algebra I 5 Credits:** This course is designed for the students who would have difficulty with the standard first year algebra course. It includes the fundamentals of a standard algebra course, with lessons and examples that are easy to read and an abundance of exercises and reviews designed to establish and strengthen algebraic skills and concepts. In addition, there will be supplemental work to help prepare the student for the HSPA (High School Proficiency Assessment).

**310A & 310B Algebra I 5 Credits:** Algebra I is designed to develop deductive reasoning as well as analytical thinking. The course includes a study of the real number system, polynomials, displaying data relationships with graphs, algebraic equations and inequalities, functions and their graphs, and the solution of word problems with real life applications using algebraic techniques. The categories of the HSPA are integrated and continually reviewed throughout the course.

**310H Algebra I Honors 5 Credits:** This course is intended for students who demonstrated above average abilities in pre algebra mathematics. The course is designed to help the student understand the basic structure of algebra; acquire facility in applying algebraic concepts and skills; and appreciate the need for precision of language. The student is encouraged to discover and develop an understanding of concepts and apply both concepts and skills to varied problem situations. An informal and intuitive approach to concepts, along with deductive reasoning in problem analysis is combined to balance the emphasis on both structure and skills.

**330Z Basic Algebra II 5 Credits:** This is a course which provides an ideal algebra course for college bound students who have had one year of high school algebra and who have demonstrated a need to work at a slower pace than is required in the traditional Algebra II course. It is designed for those students who need a second year of Algebra but who would have difficulty with a standard course. Reviewing for the HSPA (High School Proficiency Assessment) is also an important part of this course.

**330A & 330B Algebra II 5 Credits:** This course is intended for those students who have successfully completed the study of Algebra I. The course begins with a review of concepts and skills presented in Algebra I. Those concepts are built upon and applied to the teaching of more sophisticated and complex equation solving skills and the application of these skills to the solution of word problems. Basic trigonometric concepts and their application to problem solving are presented.

**330H Algebra II Honors 5 Credits:** Algebra II Honors is designed for those students who have attained a minimum average of B in Algebra I Honors. This course will include the study of all of the elements presented in the traditional Algebra II course plus an extension and a more detailed study of polynomial, conic sections, logarithms, analytic geometry, trigonometry, functions and functions and their graphs. The use of the graphic calculators will be encouraged throughout the course.

**320Z Basic Geometry 5 Credits:** The student in a Basic Geometry course will learn to develop simple proofs using deductive reasoning while sorting previously learned definitions and postulates. The emphasis will be placed on visualization to learn geometric relationships that can also be used in other fields of knowledge. Throughout the course H.S.P.A. and TerraNova type questions will be integrated in the curriculum.

**320A & 320B Geometry 5 Credits:** This course will begin with the introduction of geometric concepts, simple applications and the development of simple deductive proofs by the use of logical reasoning. The student will develop his/her ability to analyze and interpret geometrical relationships that would be useful in future mathematics courses and other fields of knowledge. Emphasis will be placed on numerical application by providing students with a wide range of exercises to accommodate individuals of varying ability. Throughout the course the categories on the High School Proficiency Test will be reinforced and refined. The course will also include a review of the topics for the S.A.T.

**320H Geometry Honors 5 Credits:** The Geometry Honors course is designed to introduce students to the study of Euclidean geometry, suffused with elements of analytic, coordinate and solid geometry, the geometry of transformations, trigonometry, and algebra, in a high-level and fast-paced environment for advanced students. In addition to the concepts covered in the basic geometry program, the honors course includes selected topics and activities intended to provide enriching experiences, encourage depth of understanding and increase the breadth of knowledge. This course is intended for those who desire advanced placement in mathematics and who have successfully completed Algebra I Honors.

**305Z Survey of Academic Math 5 Credits:** This course is designed for those students who have completed Algebra 1 and Geometry and have expressed a need for additional mathematical study. Survey of Academic Math is presented so that the student not only has an opportunity to strengthen basic skills and skill applications, but also to develop a process of logical thinking. This course includes methods of applying mathematics to obtain like skills in mathematics. Topics covered include applying mathematics to interest rates, games and sports, cooking, managing money, which includes a bank account, and remodeling a home. Students taking this course will be instructed in the many ways mathematics is a life skill

**300F/S Mathematics Strategies 9 2.5 Credits:** This half-year course is designed to introduce ninth grade students to mathematical problems and concepts found on the HSPA test. The course will serve as a basic introduction to Numerical Operations, Measurement and Geometry, Number Concepts, Data Analysis, and Fundamentals of Algebra. The course will also be used to provide each student with experience in the use of calculators and computers to solve HSPA type of problems. It will also provide practice in solving open-ended mathematical problems. Practical example and suggestions of what to look for when solving HSPA type questions and strategies for taking standardized tests to help improve test scores will be emphasized.

**301F/S Mathematics Strategies 10 2.5 Credits:** The Math Strategies course is designed for the 10th and 11th year students who were identified at risk of failing the HSPA test. The principal objective of the course is to reiterate basic math concepts tested by HSPA. It covers wide range of topics, from properties of real numbers and math operations through trigonometry and vectors. Students are not only getting the factual knowledge of the subject matter but also gain and sharpen their test taking skills and strategies.

**310F, 311F, 3E11, & 3E12 Fundamentals of Mathematics 5 Credits:** These courses are designed to help students who need extra assistance in preparing to pass the math section of the mandated New Jersey HSPA exam. The principal objective of the courses is to familiarize students with the math questions found on the HSPA and to help them review and practice all the New Jersey Core Curriculum Content Standards in the area of mathematics. The use of a calculator will be encouraged throughout the course.

**312F/S Fundamentals of Mathematics 1 5 Credits:** Fundamentals of Mathematics 12 are half-year courses designed for the twelfth grade student who failed or has not yet passed the required Math part of the HSPA. The course will focus on improving the mathematics problem solving skills of the student so that he/she will be able to successfully complete the Special Review Assessment (SRA) process. Students who have not passed the HSPA can be awarded a high school diploma by successfully completing the SRA.

**340Z Introduction to College Math. 5 Credits:** I.C.M. is designed for the student who would like to further his knowledge of mathematics beyond Algebra and Geometry and to prepare him for the first year of college math and basic science courses. The areas of coordinate geometry, trigonometry, exponents, logarithms, sequences and series will be explored. The student will have hands on experience on the computer terminals and on the graphing calculator.

**345H Precalculus Honors 5 Credits:** The Precalculus course is designed for the 11th year student who intends to take Advanced Placement Calculus in the senior year. The principal objective of the course is to develop a strong foundation in continuous and discrete function theory. This course will include the study of polynomial, conic section, logarithmic, trigonometric and inverse functions and their graphs. Students will learn to construct mathematical models and use them, together with graphing technology, to solve a large number of real-life problems.

**346P AP Calculus Honors 6 Credits:** This course is designed for the advanced placement student. Differential and Integral Calculus are developed, with applications and related problems involving velocity, related rates, maxima and minima problems, exponential and logarithmic functions. In general the outline follows the topics listed for the Calculus AB Advanced Placement Test and students will be required to take the appropriate AP Calculus Test.

**351Z Computer Applications 5 Credits:** Computer Applications is a course designed to provide the student with instruction in computer software concepts. This course will include the study of the TRUE BASIC programming language, the HTML programming language, and the VISUAL BASIC programming language. Computer Applications is designed to provide students with critical thinking and computer simulation activities that will help develop their ability to solve problems. Additional concepts and applications dealing with databases, spreadsheets, business presentation software and Web page design will be included in the course.