MATHEMATICS DEPARTMENT

In 2005, the Board of Regents in the State of New York began modifying the mathematics curriculum. Accordingly, the "Math A" and "Math B" courses will be eliminated and replaced by three new courses, "Integrated Algebra", "Integrated Geometry" and "Integrated Algebra II and Trigonometry". These courses are built around five process strands: Problem Solving, Reasoning and Proof, Communication, Connections and Representation as well as five content strands: Number Sense and Operations, Algebra, Geometry, Measurement, Statistics and Probability. These courses will require students to apply and adapt a selection of strategies and algorithms to solve a variety of problems using both traditional and technological tools. Implementation of this program is being phased in beginning September of 2007.

COURSE	COURSE LENGTH	CREDIT	WEIGHT

INTEGRATED ALGEBRA (0314) year 1 1.0

The focus point of this course is the algebra content strand of the New York State Core Curriculum. This course will assist students in developing skills and processes to be applied using a variety of techniques to successfully solve problems in a variety of settings. Topics will include: linear equations, quadratic functions, absolute value and exponential functions. Coordinate geometry and problem solving situations will be integrated into the investigation of these functions along with matrix solutions to systems of equations, data analysis, right triangle trigonometry and elementary probability theory. Students will take the *Integrated Algebra Regents* exam at the end of this course.

Note: Passing the Integrated Algebra Regents examination is a graduation requirement.

This course will be for students who have a failing grade in Integrated Algebra and on the Integrated Algebra Regents.

INTEGRATED ALGEBRA LAB (0315) year 1 1.0

This is the same program of study presented in Integrated Algebra except that there is a lab attached every other day. It is designed to give students the extra time needed to be successful. Students will take the *Integrated Algebra Regents* exam at the end of this course.

Note: Passing the Integrated Algebra Regents examination is a graduation requirement

This course will be for students who have a failing grade in Integrated Algebra and on the Integrated Algebra Regents.

INTEGRATED ALGEBRA 2 LAB (0309 year 1 1.0

This is the second half of a two year program of study that will prepare students to take the Integrated Algebra Regents. The course includes study in the key ideas of the New York State Mathematics Core Curriculum. The emphasis is on using algebraic skills to assist in the solution of applications problems. Topics will include linear functions and inequalities, algebraic fractions and quadratic functions. Students will take the *Integrated Algebra Regents* exam at the end of this course.

Note: Passing the Integrated Algebra Regents examination is a graduation requirement.

PREREQUISITE: A passing grade in Integrated Algebra 1.

INTERMEDIATE ALGEBRA (0325) year 1 1.0

Intermediate Algebra is intended to help students develop the mathematics skills and foundations necessary to complete topics related to Integrated Algebra and to explore topics related to Integrated Geometry. Students will find this course will strengthen their algebraic, critical thinking skills and problem solving skills. The course will include topics such as operations on algebraic expressions, first and second degree equations, inequalities, geometry, circles and problem solving techniques. Upon successful completion of this course, it is recommended that the student enroll in an Integrated Geometry Course. Students will retake the *Integrated Algebra Regents* in January.

PREREQUISITE: A passing grade in Integrated Algebra course with a failing grade on the Integrated Algebra Regents.

COURSE	COURSE LENGTH	CREDIT	WEIGHT

INTEGRATED GEOMETRY (0317) year 1 1.0

The focal point of this course is the geometry content strand of the New York State Core Curriculum. This course will give the students opportunity to make conjectures about geometric situations using formal and informal proofs and employ an integrated approach to the study of geometric relationships. Topics will include: Congruence and similarity of triangles, transformations, coordinate geometry. Properties of geometric figures will receive attention. Students will take the *Integrated Geometry Regents* exam at the end of this course.

Note: Passing the Integrated Geometry Regents examination is required to receive the "Regents Diploma with Advanced Designation."

PREREQUISITE: A passing grade on the Integrated Algebra Regents exam and a minimum grade of 80 in Integrated Algebra or minimum grade of 90 in Integrated Algebra Lab.

INTEGRATED GEOMETRY 1 (0321)
INTEGRATED GEOMETRY 2 (0322) year 1 1.0

This is a two year program of study that will prepare students to take the *Integrated Geometry Regents* exam. The course includes a more in depth study of the key ideas of the Core Curriculum. The emphasis is on giving students the opportunity to make conjectures about geometric situations using formal and informal proofs and employ an integrated approach to the study of geometric relationships. Topics will include congruence and similarity of triangles, transformations, and coordinate geometry. Properties of geometric figures will receive attention. Students will be eligible to take the *Integrated Geometry Regents* exam in June of the year they complete Integrated Geometry 2.

Note: Passing the Integrated Geometry Regents examination is required to receive the "Regents Diploma with Advanced Designation."

PREREQUISITE for Geometry 1: A passing grade on the Integrated Algebra Regents exam and passing grade in Integrated Algebra Lab or a grade less than 80 in Integrated Algebra.

PREREQUISITE for Geometry 2: A passing grade in Integrated Geometry 1.

INTEGRATED GEOMETRY HONORS (0318) year 1 1.05

students will study material to prepare for the Integrated Geometry Regents exam. The curriculum includes a more in-depth study of the key ideas in the New York State Mathematics Core Curriculum. The emphasis is on additional study of geometry, proof, transformations, coordinate geometry and properties of geometric figures. Students will investigate different geometric situations and justify geometric relationships. Students will be eligible to take the *Integrated Geometry Regents* exam at the end of this course.

Note: Passing the Integrated Geometry Regents examination is required to receive the "Regents Diploma with Advanced Designation."

PREREQUISITE: Integrated Algebra Honors

MATH B2 B (0370) year 1 1.0

This is a two-year program of study that will prepare students to take the *Math B Regents* exam. The course includes more in-depth study of the seven key ideas of the *Core Curriculum*. The emphasis is on using geometry, trigonometry, probability, and statistical analysis, along with use of algebraic skills to model and solve in-context and application problems. Students will be eligible to take the *Math B Regents* exam in June of the year in which they complete Math B2.

Note: Passing the Math B Regents examination is required to receive the "Regents Diploma with Advanced Designation."

***PREREQUISITE for B2A*:** A minimum grade of 85 in Math B1A, or 95 in Math B1B.

Note: The last administration of the Math B Regents exam will be June, 2010.

COURSE	COURSE LENGTH	CREDIT	WEIGHT
MATH TOPICS BC (0382)	year	1	1.0

This course is intended to help students develop the mathematics skills and foundations necessary to complete topics related to Math B and to explore related topics in College Algebra and Statistics. Students will find that this course will strengthen their algebraic, critical thinking and problem solving skills. The course will include topics such as trigonometric applications, identities, solving equation, circles, and regressions. Upon successful completion of this course, it is recommended that students retake the *Math B Regents* exam, affording them the opportunity to earn a "Regents Diploma with Advanced Designation."

PREREQUISITE: Successful completion of Math B2, with a Failing grade on the Math B Regents exam.

FOUNDATIONS FOR ADVANCED MATHEMATICS (0388)	year	1	1.0

Foundations for Advanced Mathematics is intended to help students develop the mathematics skills and foundations necessary to complete topics related to Integrated Geometry and to explore topics related to Integrated Algebra 2/Trigonometry. Students will develop the skills and self-confidence necessary to continue studying mathematics. Students will find that this course presents a rich overview and intertwining of topics to provide a sense of the strength and extent of the mathematics disciplines. The course will include topics such as trigonometric applications, conic sections, uncertainty, patterns and functions as well as additional study of measurement and the complex number system. Upon successful completion of this course, it is recommended that the student enroll in the Integrated Algebra 2/Trigonometry Course. Students will retake the *Integrated Geometry Regents* in January.

PREREQUISITE*:* Successful completion of Integrated Geometry with a failing grade on the Integrated Geometry regents.

INTEGRATED ALGEBRA 2/ TRIGONOMETRY H (0307)	year	1	1.05

Students will study material to prepare for the Integrated Algebra 1/Trigonometry Regents exam. The curriculum includes a more in-depth study of the key ideas in the New York State Mathematics Core Curriculum. The emphasis is on additional study of algebraic techniques, number system including imaginary and complex numbers, functions, problems with direct and indirect variation as well as work with Trigonometric functions and right triangle trigonometry. Students will investigate different geometric situations and justify geometric relationships. Students will be eligible to take the *Integrated Algebra 2/Trigonometry Regents* exam at the end of this course.

Note: Passing the Integrated Algebra 2/Trigonometry Regents examination is required to receive the "Regents Diploma with Advanced Designation".

PREREQUISITE: Integrated Geometry Honors

INTEGRATED ALGEBRA 2/ TRIGONOMETRY (0302)	year	1	1.0

The focal point of this course is the Algebra 2/Trigonometry content strand of the New York State Core Curriculum. This course will give the students the opportunity to develop their algebraic techniques, work with polynomial functions, absolute value and trigonometric functions. Students will also work with direct and indirect variation, data analysis and right triangle trigonometry. Students will take the *Integrated Algebra 1/Trigonometry Regents* exam at the end of this course.

Note: Passing the Integrated Algebra 2/Trigonometry Regents examination is required to receive the "Regents Diploma with Advanced Designation".

PREREQUISITE: A passing grade on the Integrated Geometry Regents exam and a passing grade in Integrated Geometry.

COURSE	COURSE LENGTH	CREDIT	WEIGHT

PRE-CALCULUS A (0350) year 1 1.0

This is a course designed to provide above average students successfully completing a Math B course with the requisite background for college calculus. Topics discussed include advanced algebra, functions, analytic geometry, exponential and logarithmic functions, as well as an introduction to differentiation and integration.

PREREQUISITE: A minimum grade of 80 in Math B2A or 90 in Math B2B.

PRE-CALCULUS B (0354) year 1 1.0

Providing a fourth year of college preparatory mathematics is the intent of this course. Entering students must have passed a Math B course. A thorough discussion of the theory of functions leads to an introduction to some basic concepts of calculus.

PREREQUISITE: A grade less then 80 in B2A or less then 90 in B2B.

PRE-CALCULUS H (0346) year 1 1.05

In addition to the core of topics taught in Pre-Calculus A and B, Pre-Calculus H will delve into polynomial functions, logarithmic theory and techniques of factoring. This course is designed to help students develop the mathematics skills and foundations needed to pursue topics in Advanced Placement Calculus. The course is open to all students who successfully complete Math BH.

***PREREQUISITE*:** Pass Honors Criteria in Math BH.

ADVANCED PLACEMENT CALCULUS AB (0358) year 1 1.15

In this course, students successfully completing pre-calculus in their junior year are given the opportunity to study one semester of college calculus within the framework of the high school year. Differential and integral calculus and applications are considered. Students are expected to take the *Advanced Placement* exam in AP Calculus AB in May.

***PREREQUISITE*:** Pass Honors Criteria in Pre-Calculus H.

OCCUPATIONAL MATHEMATICS (0316) year 1 1.0

This course is designed for students pursuing the occupational sequence required for a high school diploma. The course will help students develop their algebraic, critical thinking and problem solving skills in occupational areas cross-referenced to topics in Math A. Students will be given opportunities in January and in June to satisfy their Regents requirement for graduation.

PREREQUISITE: Students who have not met Math Regents requirements for graduation.

CONSUMER MATHEMATICS (0312) year 1 1.0

Basic skills are reinforced through the use of real-life applications. Among the topics considered will be budgeting, taxation, and banking. Concepts of pre-algebra and geometry will also be discussed.

PREREQUISITE: A ninth grade math course.

VISUAL BASIC (0383) sem ½ 1.0

Visual Basic is the perfect language for the student who has had no instruction in computer programming. It uses the same features that students are familiar with when running applications in the Windows environment: command buttons, message boxes, dialogue boxes and menus. Students will learn to input and output data, program decision-making and looping structures, and use data files. Students will also be taught some techniques in computer graphics.

PREREQUISITE: Successful completion of Math A1 or higher.

COURSE	COURSE LENGTH	CREDIT	WEIGHT
INTRODUCTION TO COMPUTER SCIENCE (0379)	sem	½	1.0

This course is designed to provide a foundation in the Java language which will be used in the Advanced Placement Computer Science course. Students will learn programming methodology, object-oriented design, and the syntax and semantics of the Java language. In addition, this course provides an introduction to simple data types and language structures. This course assumes some prior background in computer programming (Visual Basic) and problem solving. The level of difficulty of the mathematics involved requires that entering students possess a minimum average of 85 in Math A and Math B.

PREREQUISITE: Visual Basic.

ADVANCED PLACEMENT COMPUTER SCIENCE (0374)	year	1	1.15

Advanced Placement Computer Science is a course in Data Structures using the Java language. Students will be introduced to such data storage techniques as arrays, stacks, queues, linked lists, and binary trees. In addition, a variety of sorting and searching algorithms will be studied and the efficiency of each evaluated. A case study provided by the College Board is a required part of the curriculum. Students are expected to take the *Advanced Placement* Computer Science A exam in May.

***PREREQUISITE*:** Introduction to Computer Science

DISCRETE MATHEMATICS I (0366)	sem	½	1.0

Discrete Math I is a course in problem-solving techniques with an emphasis on applications in the real world. Students will learn graph theory that includes graph coloring, Euler and Hamilton circuits, shortest path problems, and critical path problems. Also included are units on trees, sets, probability, and fractals. The course provides a solid foundation in problem-solving for students wishing to study computer programming. This is a fun course for students who want to learn techniques that are not part of the regular math curriculum.

PREREQUISITE: Successful completion of Math A1 or higher.

DISCRETE MATHEMATICS II (0367)	sem	½	1.0

Discrete Math II covers topics not presently covered in Discrete Math I. These include election theory, fair division, apportionment, codes, matrices, functions and recursion, tessellations, and game theory. This course is open to students in grades 10-12. Discrete Math I is ***not*** a prerequisite for Discrete Math II.

***PREREQUISITE*:** Successful completion of Math A1 or higher.

EVERYDAY STATISTICS (0389)	year	1	1.0

Statistics is an indispensable tool, which is used to help make intelligent decisions. This course is intended to present a broad overview of the subject of statistics and its applications. Students will explore the statistical relationships in sports, the sciences, psychology, sociology, and business. A graphing calculator and computer technology will be used as a tool to deepen the student's understanding of statistical processes.

PREREQUISITE: Successful completion of a Math B2 course.

COURSE **COURSE LENGTH** **CREDIT** **WEIGHT**

ADVANCED PLACEMENT STATISTICS (0398) year 1 1.15

The Advanced Placement Statistics course is equivalent to an introductory, non-calculus based, college course in statistics. It is particularly well-suited for students planning college majors in social sciences, health sciences, and business. Students are exposed to four broad conceptual themes: (1) exploring data; (2) planning a study; (3) anticipating patterns; (4) statistical inference. Students will use a graphing calculator and/or computer technologies as an aid to their statistical studies. Students are expected to take the *Advanced Placement Statistics* exam in May.

***PREREQUISITE*:** Completion of Math BH or Math B2A and meeting AP/Honors criteria OR Math Department approval.

FINANCIAL MATH (0311) year 1 1.0

Financial Math is a specialized interdisciplinary course related to the Mathematics and Technology learning standards as well as the Career Development and Occupational Studies learning standards. This course is designed to prepare students for both college level business programs and to understand the complex financial world they will encounter during their lives both personally and professionally.

***PREREQUISITE*: Open to juniors and seniors who have successfully completed the Math A or Integrated Algebra requirement for graduation. May be taken for math or business credit.**

Important Notes:

1. **Students must pass three (3) years of Math at the high school level (New York State graduation requirement).**
2. **Purchase of a graphing calculator is not required for any Math course at the high school. Graphing calculators are available for student use in the classroom. However, since these calculators are required or recommended on certain standardized tests, it is to the students' advantage to have their own calculator. In this way students can better familiarize themselves with the calculator's capabilities, utilize it to help complete assignments and be available for use on S.A.T. exams.**

REGENTS DIPLOMA				REGENTS DIPLOMA WITH ADVANCED DESIGNATION			
Students entering Grade 9 in:	Math Units of Credit	Course/ Regents exam options*	Math Regents exams	Math Units of Credit	Course Options	Math Regents exams	Regents exam options*
September 2006, 2007	3	Math A, Math B, ---------- Integrated Algebra, Geometry, Algebra 2/ Trigonometry	1	3	Math A, Math B ---------- Integrated Algebra, Geometry, Algebra 2/ Trigonometry	2 or 3	Mathematics A and Mathematics B or Algebra 2/ Trigonometry ---------- Integrated Algebra or Mathematics A and Geometry, and Algebra 2/Trigonometry
September 2008	3	Integrated Algebra, Geometry, Algebra 2/ Trigonometry ---------- Mathematics A**, Mathematics B**	1	3	Integrated Algebra, Geometry, Algebra 2/ Trigonometry	3 or 2	Integrated Algebra or Mathematics A** and Geometry, and Algebra 2/Trigonometry ---------- Mathematics A** and Mathematics B** or Algebra 2/Trigonometry
September 2009 and thereafter	3	Integrated Algebra, Geometry, Algebra 2/ Trigonometry	1	3	Integrated Algebra, Geometry, Algebra 2/ Trigonometry	3	Integrated Algebra or Mathematics A** and Geometry, and Algebra 2/Trigonometry