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G.W. HEWLETT HIGH SCHOOL

MATHEMATICS DEPARTMENT



**Can be taken as a math elective after completion of Algebra 2

The following Business courses may be used as a third year of Math: Financial Math Introduction to Accounting College Accounting Computer Programming 1 & 2 AP Computer Science A/Principles (See Business Department offerings for more information)

ALGEBRA 1R

3409

The Algebra 1 course begins with efficiently reviewing algebraic concepts while at the same time moving students forward into new ideas. Students contrast linear and exponential functions as they explore exponential models using the familiar tools of tables, graphs, and symbols. Finally, they apply these same tools to study quadratic functions. Throughout, the connection between functions and equations are emphasized to give students more ways to model and make sense of problems.

ALGEBRA 1R LAB

3409L

NO CREDIT Additional alternate day support class may be recommended for those students who need more time to master material in preparation for the Algebra I Regents examination in June.

TEAM ALGEBRA 1R + LAB

3409T

This course is designed for those students who need more time and practice to master the mathematical skills and concepts, which are needed to successfully complete Algebra 1R. The content of Team Algebra 1R + Lab is the same as Algebra 1R, but there is an additional lab period assigned to students every other day to help achieve this goal. Additional labs per cycle: 3 Enrollment Guidelines: Teacher recommendation

GEOMETRY R

3410

In this Geometry, course students expand their experiences with transformations and constructions to engage in formal proofs of geometric theorems. They use transformations in the plane as a foundation to prove congruence and similarity. From this foundation, students look to define trigonometric ratios and apply these concepts to solving problems involving right triangles. Students also apply geometric concepts such as solid geometry, coordinate geometry and circles to model situations.

Prerequisite: Successful completion of a course that culminates with the Algebra 1 Regents exam

GEOMETRY LAB

3410L

Additional alternate day support class may be recommended for those students who need more time to master material in preparation for the Geometry Regents examination in June.

GEOMETRY H

3410H

In this Geometry, course students expand their experiences with transformations and constructions to engage in formal proofs of geometric theorems. They use transformations in the plane as a foundation to prove congruence and similarity. From this foundation, students look to define trigonometric ratios and apply these concepts to solving problems involving right triangles. Students also apply geometric concepts such as solid geometry, coordinate geometry and circles to model situations. Geometry H is an honors level course, which challenges students with higherorder thinking beyond the level encountered in Geometry R.

Prerequisite: Successful completion of a course that culminates with the Algebra 1 Regents exam Enrollment Guidelines: Minimum grade of 90 in Algebra 1/Teacher recommendation

TEAM GEOMETRY R+LAB

3410T

This course is designed for those students who need more time and practice to master the mathematical skills and concepts, which are needed to successfully complete Geometry R. The

1 YEAR

ALT DAY

1 CREDIT

1 YEAR **1 CREDIT**

1 YEAR

1 CREDIT

1 YEAR

1 CREDIT

ALT DAY

NO CREDIT

content of Team Geometry Lab is the same as Geometry R, but there is an additional lab period assigned to students every other day to help achieve this goal. Additional labs per cycle: 3 *Enrollment Guidelines:* Looping of grade 9 Team Algebra + Lab/Teacher recommendation

TOPICS IN ALGEBRA 2

3461

This course covers topics such as real and imaginary numbers, polynomials, graphing of linear, quadratic and simultaneous equations. It also includes an introduction to trigonometry. Students are required to take a final exam at the conclusion of the course.

Prerequisite: Successful completion of a course that culminates with the Geometry Regents exam **Enrollment Guidelines:** Teacher recommendation.

ALGEBRA 2R

3413

Building on their work with linear, quadratic, and exponential functions, students extend their repertoire of functions to include polynomial, rational, and radical functions. Students work closely with the expressions that define the functions, and continue to expand and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. Students will learn to make inferences and justify conclusions from sample surveys, experiments, and observational studies. Finally, students create probability models, compute, and interpret probabilities from these models.

Prerequisite: Successful completion of a course that culminates with the Geometry Regents exam

ALGEBRA 2+ LAB

3413L

This course is designed for those students who need more time and practice to master the mathematical skills and concepts, which are needed to successfully complete Algebra 2R. The course content of Algebra 2 + Lab is the same as Algebra 2. Additional labs per cycle: 3

Prerequisite: Successful completion of a course that culminates with the Geometry Regents exam

ALGEBRA 2H

3413H

Building on their work with linear, quadratic, and exponential functions, students extend their repertoire of functions to include polynomial, rational, and radical functions. Students work closely with the expressions that define the functions, and continue to expand and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. Students will learn to make inferences and justify conclusions from sample surveys, experiments, and observational studies. Finally, students create probability models, compute, and interpret probabilities from these models. Algebra 2H is an honors level course, which challenges students with higher–order thinking beyond the level, encountered in Algebra 2R.

Prerequisite: Successful completion of a course that culminates with the Geometry Regents exam **Enrollment**: Minimum grade of 90 in Geometry H/Teacher recommendation

QUANTWAY MATHEMATICS

3466

Students will further develop their understanding of proportional reasoning, interest and loans, probability, functions, exponents, logarithms and statistics. Students are expected to work collaboratively in real-life applications of numeracy, the statistical analysis process, experimental designs and conclusions, Z-scores, P-values, multivariate models, piece-wise functions and data visualizations and interpretation.

Pre-requisite: Completion of a class that culminates with the Algebra 2 Regents examination.

1 YEAR

1 YEAR

1 CREDIT

1 CREDIT

1 YEAR 1 CREDIT

1 YEAR 1 CREDIT

1 YEAR

1 CREDIT

44

TOPICS IN PRE-CALCULUS

3435

This course is designed for students planning to continue with four or more years of mathematics. It will help students improve their mathematical reasoning and problem solving skills and help prepare students for future math courses at the college level. Topics covered include sets, relations and functions, theory of equations of higher degree, matrices, complex numbers, derivatives, integration, Golden Ratio, Fibonacci numbers, and other applications of mathematics.

Prerequisite: Successful completion of a course that culminates with the Algebra 2 Regents exam

PRE-CALCULUS 11

3441-11

This fourth-year course in the math program extends the curriculum of the first three years and gives the college-bound student a firm foundation for future math courses at the college level. Topics included will be polynomials, synthetic division, curve sketching, complex numbers, limits, derivatives and their applications to velocity, acceleration and maxima-minima problems, anti-derivatives, logarithmic and exponential functions.

Prerequisite: Successful completion of a course that culminates with the Algebra 2 Regents exam **Enrollment Guideline:** Intended for juniors preparing for Calculus

PRE-CALCULUS 12

3441-12

This fourth-year course in the math program extends the curriculum of the first three years and gives the college-bound student a firm foundation for future math courses at the college level. Topics included will be logarithmic and exponential functions, polynomials, synthetic division, curve sketching, complex numbers, limits, derivatives and their applications to velocity. Students are required to take a final exam at the end the course.

Prerequisite: Successful completion of a course that culminates with the Algebra 2 Regents exam

PRE-CALCULUS H

3441H

This is a rigorous pre-calculus course designed to give the student a sophisticated approach to modern mathematics. It integrates topics from modern algebra, analytic geometry, spatial geometry, trigonometry, and introductory calculus into a unified course from a modern point of view. Major areas covered include: set theory, relations, functions, mathematical systems, extension of coordinate geometry in two and three dimensions, matrices, polar coordinate systems, parametric equations, vectors, sequences, series, limits, complex numbers, and an introduction to differential and integral calculus. Students are required to take a final exam at the end the course. *Prerequisite:* Successful completion of Algebra 2H

Enrollment Guidelines: Minimum grade of 90 in Algebra 2H and Teacher recommendation

CALCULUS H

3445H

This course is designed to give the student substantial training in the principles of differential and integral calculus, with emphasis on the applications of these principles. Topics included are limits, derivatives of algebraic, trigonometric, exponential and logarithmic functions along with integrals relating to these topics. Applications will include maxima-minima problems, related rates and other geometric and physical applications. Students are required to take a final exam at the end of the course.

Prerequisite: Successful completion of Pre-Calculus or Pre-Calculus H

1 YEAR 1 CREDIT

1 YEAR

1 CREDIT

1 YEAR

1 CREDIT

1 YEAR 1 CREDIT

1 YEAR

1 CREDIT

AP CALCULUS AB

3443A

This college-level first year calculus course is designed to give the student substantial training in the principles of differential and integral calculus, with emphasis on the applications of these principles. Topics included are limits, derivatives of algebraic, trigonometric, exponential and logarithmic functions along with integrals relating to these topics. Applications will include maxima-minima problems, related rates and other geometric and physical applications. Students will develop proficiency in the use of the graphing calculator. Students are required to take the AP Calculus AB exam in May.

Prerequisites: Successful completion of Pre-Calculus H

Enrollment Guideline: Minimum grade of 85 in Pre-Calculus H and teacher recommendation

AP CALCULUS BC

3444A

Advanced Placement Calculus parallels the freshmen calculus course as it is now given in most colleges. The primary objective is to give substantial training in the differential and integral calculus with sufficient applications to make the subject matter meaningful. The subject matter is aimed at preparing the student to qualify for advanced placement in mathematics. Topics to be considered deal with limits, derivative, the integral and trigonometric, exponential, and logarithmic functions along with appropriate geometric and physical applications, sequences, series, and elementary differential equations, maxima-minima, and related rates. The graphing calculator is used extensively throughout the course. Students are required to take the AP Calculus BC exam in May. Additional labs per cycle: 3

Prerequisite: Successful completion of Pre-Calculus H

Enrollment Guideline: Minimum grade of 90 in Pre-Calculus H and teacher recommendation

AP STATISTICS

3451A

This one-year course aims to give students an understanding of the main concepts and skills for collecting, analyzing and drawing conclusions from data. Students are given procedures for exploring data, planning a study, learning to anticipate patterns and making statistical inferences. Graphing calculators and computers will be used throughout the course in analyzing data and solving problems. Topics include normal distributions, correlation, sampling distributions, probability, estimating with confidence, significance tests and chi square procedures among others. Students are required to take the AP Statistics exam in May.

Prerequisite: Successful completion of a course that culminates with the Algebra 2 Regents exam **Enrollment guideline:** Minimum grade of 85 in Algebra 2

MULTIVARIABLE CALCULUS H

3461H

This alternate day course is the extension of calculus in one variable to calculus with functions of several variables. This course covers differential, integral and vector calculus for more than one variable. The primary audience for this course are students who wish to concentrate in either mathematics or applied mathematics in college.

Prerequisite: Successful completion of AP Calculus BC **Enrollment Guidelines**: Teacher recommendation

1 YEAR

1 YEAR 1 CREDIT

ALT DAY .5 CREDIT

1 YEAR 1.5 CREDIT