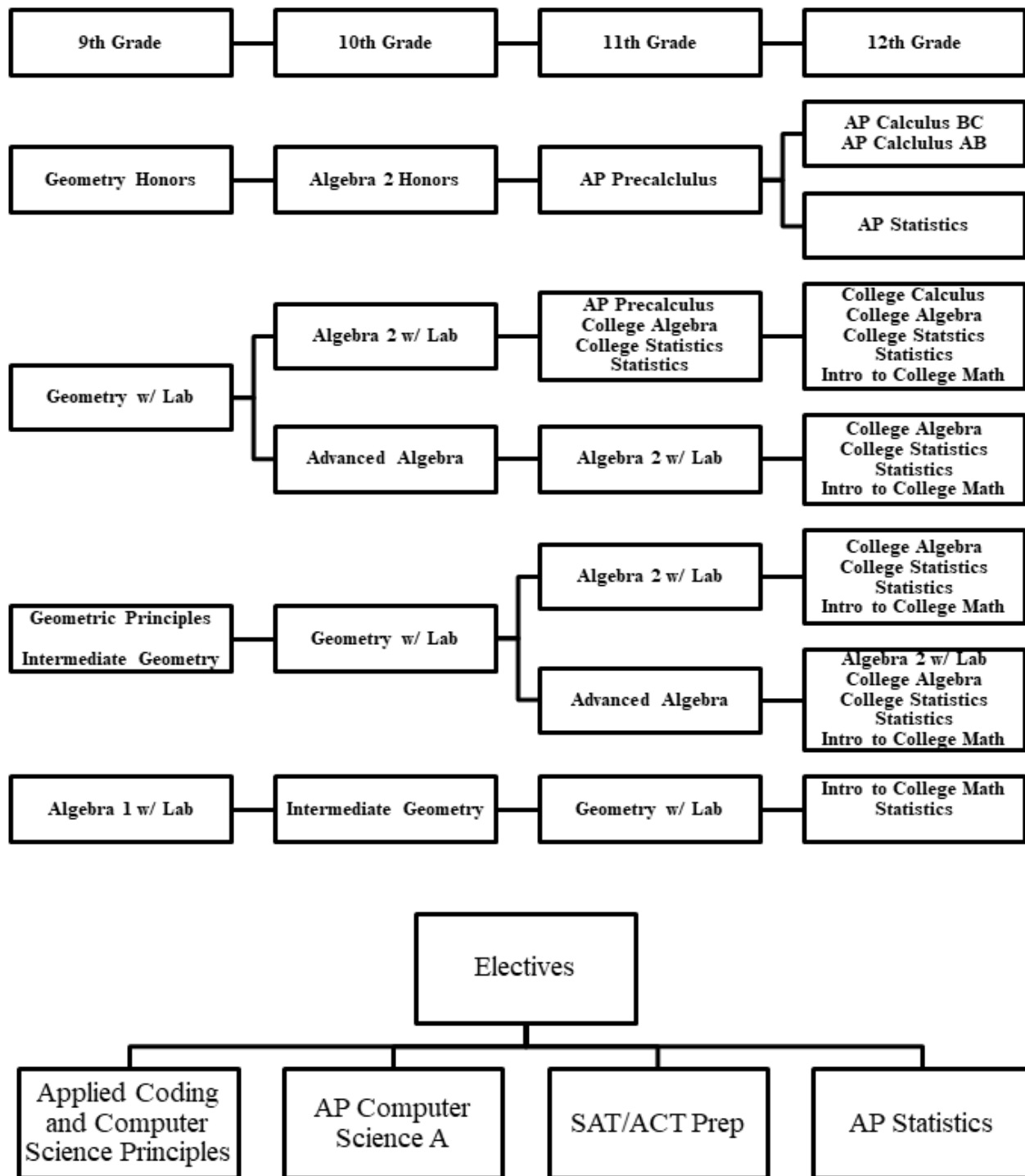


MATHEMATICS DEPARTMENT

Suggested Course Pathways



MATHEMATICS DEPARTMENT

ALGEBRA I WITH LAB

One Credit

One Year

In the course Algebra I, the focal point is functions; specifically linear, quadratic, and exponential functions. Students interpret functions represented graphically, numerically, symbolically, and translate between representations. Students display and interpret graphical representations of data. A lab period is attached to the class every other day. Students will take the Algebra I Regents in June. Graphing calculator is required.

INTERMEDIATE GEOMETRY

One Credit

One Year

Prerequisite: Algebra 1

This course is designed for students who may have had some difficulty in Algebra 1. Students who passed the Algebra 1 course but failed the Algebra 1 Regents will take this course to prepare them for the Algebra 1 Regents in January. The second half of the year students will be presented with topics to prepare them for Geometry and students who successfully complete this course will then continue to Geometry. A school final exam is given in June. Graphing calculator is required.

GEOMETRIC PRINCIPLES

One Credit

One Year

Prerequisite: Algebra 1

This course is designed for students who may have had some difficulty in Algebra 1. Students who passed the Algebra 1 course but scored a 65 – 69 on the Algebra 1 Regents will take this course to prepare them for Geometry the following year. Students will analyze two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understand and apply the Pythagorean Theorem. A school final exam is given in June. Graphing calculator is required.

GEOMETRY HONORS

One Credit

One Year

Prerequisite: Algebra I

This course presents Geometry topics. In this course it is expected students will identify and justify geometric relationships, formally and informally. The concepts of congruence, similarity, and symmetry are explored. Students develop an understanding of the attributes and relationships of two- and three-dimensional geometric shapes that can be applied in diverse contexts. Students will take the Geometry Regents in June. Graphing calculator is required.

GEOMETRY WITH LAB

One Credit

One Year

Prerequisite: Algebra I

This course presents Geometry topics at a more deliberate pace. A lab period is attached to the class every other day. In this course it is expected that students will identify and justify geometric relationships, formally and informally. Students develop an understanding of the attributes and relationships of two- and three-dimensional geometric shapes that can be applied in diverse contexts. Students will take the Geometry Regents Exam in June. Graphing calculator is required.

ADVANCED ALGEBRA

One Credit

One Year

Prerequisite: Geometry

This course is designed for students who may have had some difficulty in Geometry. Students who passed the Geometry course but failed the Geometry Regents will take this course to prepare them for the Geometry Regents in January. The second half of the year students will be presented with topics to prepare them for Algebra 2 and students who successfully complete this course will then continue to Algebra 2. A school final exam is given in June. Graphing calculator is required.

ALGEBRA 2 HONORS**One Credit****One Year****Prerequisite: Geometry**

In the course Algebra 2, students build on their knowledge of linear, quadratic, and exponential functions and extend their learning into other functions such as polynomial, rational, radical, and trigonometric functions. Students will take the Algebra 2 Regents in June. Graphing calculator is required.

ALGEBRA 2 WITH LAB**One Credit****One Year****Prerequisite: Geometry**

In the course Algebra 2, students build on their knowledge of linear, quadratic, and exponential functions and extend their learning into other functions such as polynomial, rational, radical, and trigonometric functions. A lab period is attached to the class every other day. Students will take the Algebra 2 Regents in June. Graphing calculator is required.

ADVANCED PLACEMENT PRECALCULUS**One Credit****One Year****Prerequisite: Algebra 2**

Students will engage with the mathematical practices of procedural and symbolic fluency, multiple representations, and communication and reasoning in the learning of advanced placement precalculus. Major units of study include polynomial, rational, exponential, logarithmic, trigonometric, and polar functions. Students will take a school-based final examination in June and the Advanced Placement Exam in May. Graphing calculator is required.

ADVANCED PLACEMENT CALCULUS BC**One Credit****One Year****Prerequisite: AP Precalculus**

This course begins with the study of functions and limits and will continue exploring differential and integral calculus. This course will also explore topics of analytic geometry and infinite sequences and series. This course prepares students for the Calculus BC level of the Advanced Placement Exam. A minimum of 1 hour per night of studying is necessary. Students will take a school-based final examination in June and the Advanced Placement Exam in May. Graphing calculator is required.

ADVANCED PLACEMENT CALCULUS AB**One Credit****One Year****Prerequisite: AP Precalculus**

This course begins with the study of functions and limits and will continue exploring differential and integral calculus. This course prepares students for the Calculus AB level Advanced Placement Exam. A minimum of 1 hour per night of studying is necessary. Students will take a school-based final examination in June and the Advanced Placement Exam in May. Graphing calculator is required.

ADVANCED PLACEMENT STATISTICS**One Credit****One Year****Prerequisite: Algebra 2**

AP Statistics is the high school equivalent of a one semester, introductory college statistics course. In this course, students develop strategies for collecting, organizing, analyzing and drawing conclusions from data. There are four themes in this course including exploring data, sampling and experimentation, anticipating patterns, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding. To develop effective statistical communications skills, students are required to prepare frequent written and oral analyses of real data. A minimum of 1 hour of studying per night is necessary. Students will take a school-based final examination in June and the Advanced Placement Exam in May. Graphing calculator is required.

ADVANCED PLACEMENT COMPUTER SCIENCE A**One Credit****One Year****Prerequisite: Algebra 1**

This course is a full-year course of study. Students who successfully complete this course will earn one Math credit and will receive Honors/AP track weighting. This is an introductory college-level computer science course. Students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures. Students will take a school-based final examination in June and the Advanced Placement Exam in May.

INTRODUCTION TO COLLEGE MATHEMATICS (MOLLOY UNIVERSITY)**One Credit****One Year****Prerequisite: Algebra 2 or Advanced Algebra (for seniors seeking a 3rd math credit)**

Contemporary applications in various fields: problem solving and critical thinking, set theory, logic, number theory and the real number system, algebra, consumer mathematics and financial management. There is a fee made payable directly to Molloy University. Upon successful completion, students can earn 3 college credits for this full year course. Students will take a school-based final examination in June.

COLLEGE STATISTICS (MOLLOY UNIVERSITY)**One Credit****One Year****Prerequisite: Algebra 2**

This course, given under the aegis of Molloy University, will provide students with the skills and knowledge in the field of introductory Statistics and is equivalent to a one semester college course. The course will cover an array of topics which include organization of data using tables and graphs, normal distribution, regression of linear and non-linear relationships, probability models, discrete and continuous random variables, binomial distribution, tests of significance and the Chi-square procedure. There is a fee made payable directly to Molloy University. Upon successful completion, students can earn 3 college credits for this full year course.

APPLIED CODING AND COMPUTER SCIENCE PRINCIPLES**½ Credit****One-half Year**

This course will focus on Java programming language. Students will learn this popular and fast-growing programming language. This course follows a student centered, project-based approach to software engineering with Java. This course will end in a Microsoft certificate exam (Exam 98-388 Introduction to programming using Java) so students can become certified in Java. Ultimately, students will come away with not only the technical skills to grow in the field of computer science, but the problem-solving ability and creativity that companies are increasingly looking for.

Students use a TI83/84 graphing calculator and web-based java applets to investigate statistical concepts. To develop effective statistical communications skills, students are required to prepare frequent written and oral analyses of real data. A minimum of 1 hour of studying per night is necessary. Students will take a school-based final examination in June and the Advanced Placement Exam in May. Graphing calculator required.

COLLEGE ALGEBRA (TBD)**One Credit****One Year****Prerequisite: Algebra 2**

This course enhanced the topics covered in Algebra 2. The topics include algebraic and trigonometric functions and their graphs. Also covered are exponential and logarithmic functions and their graphs, systems of equations and inequalities. There is a fee made payable directly to Molloy University. Upon successful completion, students can earn 3 college credits for this full year course.

COLLEGE CALCULUS (MOLLOY UNIVERSITY)

One Credits

One Year

Prerequisite: AP Precalculus

This course is a college level Calculus course that explores the same topics as AP Calculus AB but students do not take the advanced placement exam in May. Topics include linear, exponential, logarithmic, power, polynomial and rational functions; inverse functions; trigonometric functions; limits and continuity; derivative definition and formulas; maxima and minima, concavity, curve sketching; definite and indefinite integrals; applications. There is a fee made payable directly to Molloy University. Upon successful completion, students can earn 4 college credits for this full year course. Students will take a school-based final examination in June.

STATISTICS

One Credit

One Year

Prerequisite: Algebra 2 or Advanced Algebra (for seniors seeking a 3rd math credit)

This course will provide students with the skills and knowledge in the field of introductory statistics. Elements of statistics; measures of central tendency; measures of dispersion; correlation; probability, normal distribution and the normal curve will be covered. Students will take a school-based final examination in June.

SAT/ACT PREP (English and Mathematics)

¼ Credit Math and ¼ Credit English

One-half Year

Students in grades 10-12 will be presented with instruction, strategies, and practice exams as preparation for the SAT/ACT exams for English and Mathematics on an alternate day schedule meeting with a teacher from both departments. This course is graded, and a graphing calculator is required. Students must take the SAT/ACT exam prior to completion of this course.