

**Academy of Our Lady of Mercy
Lauralton Hall**

**MATHEMATICS DEPARTMENT
Course Descriptions 2008-2009**

The Mathematics Department requires that all students take three credits of high school math; four credits are recommended.

(411) Algebra I Honors **Year** **1 Credit**

(Prerequisite: Administration determines placement.)

This course stresses the structure of Algebra and the development of computational and problem solving skills. Topics include properties of real numbers, simplifying expressions, solving equations and inequalities, factoring, fractions, polynomials, and graphing. A graphing calculator is required for this course.

(412) Algebra I (CP1) **Year** **1 Credit**

(Prerequisite: Administration determines placement.)

This course stresses the use of linear equations and inequalities to represent real-world data. The student's knowledge is further enhanced through an introduction to quadratic, polynomial, exponential, and rational functions. A graphing calculator is required for this course.

(413) Algebra I (CP2) **Year** **1 Credit**

(Prerequisite: Administration determines placement.)

This course is similar to Mathematics 412; it is differentiated by presentation, book and difficulty.

(421) Geometry Honors **Year** **1 Credit**

*(Prerequisite for freshmen: Administration determines placement. Students should have **successfully** completed a full year of Algebra I at the honors level in Grade 8.)*

(Prerequisite for sophomores: Math 411 with at least a 78 final average or Math 412 with at least a 94 first semester average and at least a 93 final average.)

This course introduces students to deductive reasoning and logical problem solving. Topics include angles, perpendicular and parallel lines, congruent and right triangles, similar polygons, area and volume of polygons and solids. Other topics include coordinate geometry and transformations.

(422) Geometry (CP1) **Year** **1 Credit**

(Prerequisite: Math 412; or Math 413 with a recommended minimum final average of 85.)

This course is similar to Math 421; it is differentiated by presentation, book and difficulty.

(423) Geometry (CP2) **Year** **1 Credit**

(Prerequisite: Math 413 or Math 412)

This course is similar to Math 422; it is differentiated by presentation, book and difficulty.

(431) Algebra II and Trigonometry Honors **Year** **1 Credit**

(Prerequisites: Math 4101; or Math 421 with at least a 78 final average or Math 422 with at least a 95 final average and Math 412 with at least a 90 final average.)

This course focuses on the study of linear, quadratic, exponential, logarithmic, and trigonometric functions. Within this context, properties of polynomials, rational expressions, radicals and complex numbers are explored. Additional topics include matrices, conic sections, sequences, series and combinatorics. Incorporated in the curriculum is the use of the graphing calculator.

(432) Algebra II (CP1) **Year** **1 Credit**

(Prerequisite: Math 422; or Math 423 with a recommended minimum final average of 85.)

This course is a study of functions - linear, quadratic, exponential and logarithmic functions with focus on graphing and applications. It also includes matrices, equations, systems of equations, the complex number system, and abstract exercises useful for SAT preparation. The course incorporates the use of the graphing calculator.

(433) Algebra II (CP2) **Year** **1 Credit**

(Prerequisite: Math 423 or Math 422)

This course is a review of Algebra I and introduces the student to quadratic equations, rational expressions, word problems, graphing, exponents and radicals. The student is also given assignments to specifically prepare for SAT test taking.

(441) Pre-Calculus Honors **Year** **1 Credit**

(Prerequisite: Math 431 with at least a 78 final average.)

This course studies functions as models of change. It focuses on a thorough knowledge of functions – linear, exponential, logarithmic, periodic, polynomial, and rational – their graphs, and their uses as models for real world situations. It also includes additional pre-calculus topics, such as limits, as time permits. A graphing calculator is a requirement for this course.

(4042) Pre-Calculus (CP1) **Year** **1 Credit**

(Prerequisite: An 85 average in Alg 2 CP1 is strongly recommended for success in this class. Any student with at least an 80 in Alg 2 CP1 may select this class. Students with an average below 85 in Alg 2 CP1 will benefit from the pace and depth of presentations of topics in Math 4402.)

This course is similar to Pre-calculus Honors; it is differentiated by presentation and difficulty.

(4402) Functions, Statistics and Trigonometry (CP1) **Year** **1 Credit**

(Prerequisite: Math 432; or 433 with a recommended minimum final average of 85.)

This course continues the study of functions—polynomial, logarithmic, exponential and trigonometric. In addition, statistical topics are introduced. Other topics include sequences, series and probability. Incorporated in the curriculum is the use of the graphing calculator.

(4403) Applications of Mathematics (CP1) **Semester** **.5 Credit**

(Prerequisite: Math 432 or 433.) Open to seniors.

This course takes an applications approach to the following topics: linear and exponential functions, sequences, series, probability and statistics. It uses the technology of scientific and graphing calculators, computer application programs and spreadsheets. Portfolios are used in addition to traditional methods of assessment. A graphing calculator is required for this course.

(442) Personal Financial Literacy (CP1) **Semester** **.5 Credit**

(Prerequisite: Math 433 or 432)

This course introduces students to the study of personal finance. Topics include income, money management, spending and credit, and saving and investing. Students must be able to access the Internet outside of class to complete assignments and research topics.

(451) Calculus Advanced Placement **Year** **1 Credit**

(Prerequisite: Math 441 with at least an 80 final average.)

The AP Calculus course follows the AP curriculum for Calculus AB (approved by the College Board AP Audit). Students are required to take the AP Calculus exam in May.