

Algebra
Algebra II w/ Trigonometry
AP Calculus AB
AP Calculus BC
AP Statistics
Calculus III
College Algebra
Financial Algebra
Geometry
Linear Algebra
Pre-Calculus
Career Internship Program

Mathematics



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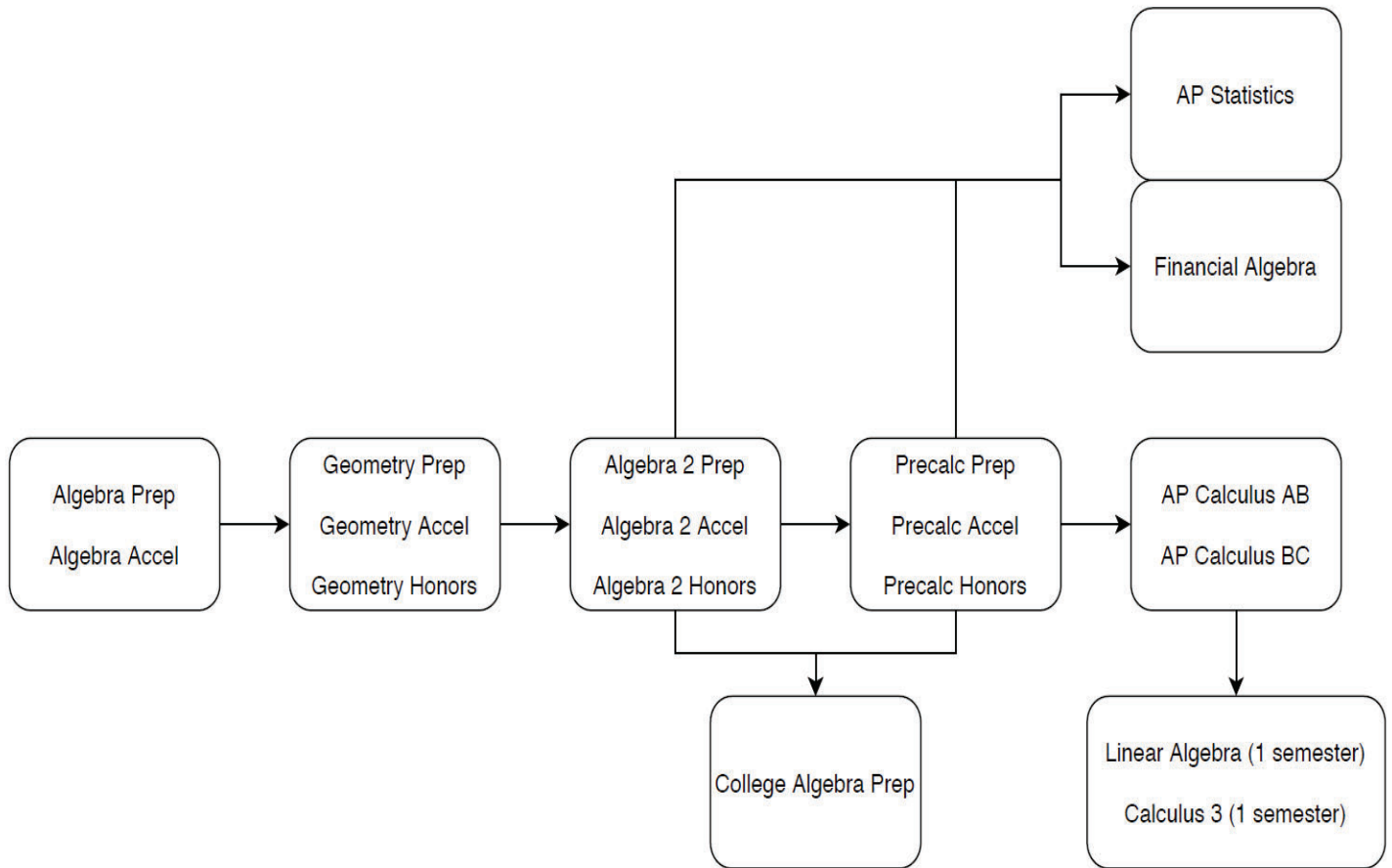
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Mathematics Department Philosophy

The mathematics curriculum has been developed to help students value mathematics, become confident in their abilities to do mathematics, become mathematical problem solvers, and to communicate and reason mathematically. Students, as a result of the high school mathematics experiences, should be able to model problems with the appropriate operations and equations, apply a variety of approaches and techniques to solve problems, understand the underlying mathematical features of problems, see the applicability of mathematical ideas to common and complex problems, use logical reasoning to present an argument, and employ technology to explore mathematical ideas and solve problems.



Mathematics

Students who successfully completed Algebra (Accel) in Grade 7th or 8th grade will receive one unit of high school credit on a pass/fail basis. The high school credit will be awarded after successful completion of one year of mathematics while enrolled in high school.



Mathematics Department Standards

The LTHS Mathematics Department has adopted the following eight principles in conjunction with both the Illinois State Standards and the Common Core State Standards. These principles and standards guide academic programs, courses and challenge students. Additionally, specific academic course standards have also been developed. These are distributed to students at the beginning of each semester or annual course.

LTTHS Mathematics Principles

Common Core State Standards for Mathematical Practice

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|----------------------|-------------------------------------------------------------------------|
| Standard I | Make sense of problems and persevere in solving them. |
| Standard II | Reason abstractly and quantitatively. |
| Standard III | Construct viable arguments and critique the reasoning of others. |
| Standard IV | Model with mathematics. |
| Standard V | Use appropriate tools strategically. |
| Standard VI | Attend to precision. |
| Standard VII | Look for and make use of structure. |
| Standard VIII | Look for and express regularity in repeated reasoning. |

Requirements

While a minimum of three years of high school mathematics is required for graduation, many students take four years of mathematics. The state of Illinois requires each student to take an Algebra and a Geometry course for two of the three required credits. It is suggested that students who desire to attend college study requirements specific to their school of interest. Most state universities in Illinois require three years of mathematics through Advanced Algebra for unconditional admission. Pre-Calculus may also be required.

Placement

The Division Chair evaluates the performance of each incoming student. Placements is based upon the following performance indicators.

- Information from the eighth grade teacher's about the incoming freshman using current math grades and student ability.
- LT will review the results and recommend further changes based on skills and supports.

Parents are then notified of the final placement.

Incoming Freshmen

Students who are placed beyond Algebra (Accel) will receive credit for Algebra only after they successfully completed Geometry. Please note that credit will not appear on the student's transcript until the end of the second semester of sophomore year. This credit will not apply to the three years of math credit required by the state of Illinois for high school graduation, nor will the level be designated.

Calculator Requirements

All Math/Science courses require a graphing calculator. Families should only purchase a graphing calculator if they do not already own one. Please call your student's math teacher if you have any questions.

Mathematics and Advanced Placement (AP)

A student may enroll in the following mathematics AP courses:

- **AP Calculus AB**

This two-semester course is especially designed for students with interest in mathematics and/or science. Completion of this course qualifies students to take the AP Calculus AB Examination.

- **AP Calculus BC**

This two-semester course is especially designed for students with high interest in mathematics and/or science. Completion of this course qualifies students to take the AP Calculus BC examination.

- **AP Statistics**

This two-semester course is especially designed for students with an interest in an introductory, non-calculus based course in statistics. Many college majors require a statistics course. This course qualifies students to take the AP Statistics examination.

Algebra (Prep) 131/132

Credit: 1	Level: III
Grade Offered: 9, 10	Annual MA4136 MA4137
Prerequisite: None	

This course intensively studies the language of algebra. Students begin their study of the real number system and its properties. The course is designed to convey an understanding of the meaning and use of variables, formulas, equations and inequalities, exponents, functions, graphs, and an introduction to probability and statistics. The fundamental processes with algebraic expressions are taught, including simple cases of factoring and work with algebraic fractions. The significance of problems and of problem solving is emphasized throughout the course. Material covered in this course will not only provide students with a foundation of algebra to be applied in future courses, but will also prepare students for college level coursework.

Algebra (Prep) 132/131 (staggered)

Credit: 1/2	Level: III
Grade Offered: 9, 10	Fall MA4936 Spring MA4937
Prerequisite: Failure of 1st semester Algebra (Prep) or Accel)	

Algebra (Accel) 141/142

Credit: 1	Level: IV
Grade Offered: 9	Annual MA4146 MA4147
Prerequisite: None	

This course intensively studies the language of algebra. Students begin their study of the real number system and its properties. The course is designed to convey an understanding of the meaning and use of variables, formulas, equations and inequalities, exponents, functions, graphs, and an introduction to probability and statistics. The fundamental processes with algebraic expressions are taught, including simple cases of factoring and work with algebraic fractions. The significance of problems and of problem solving is emphasized throughout the course. Material covered in this course will not only provide students with a foundation of algebra to be applied in future courses, but will also prepare students for college level coursework.

Algebra II w/Trigonometry (Prep) 231/232

Credit: 1	Level: III
Grade Offered: 10	Annual MA6236 MA6237
11, 12	Annual MA6231 MA6232
Prerequisite: Geometry (Prep)	

This course presents the topics contained in Algebra II w/Trigonometry and also includes the topics of polynomial functions, logarithmic functions, sequences, series, elementary probability, and rational functions. Problem solving with the graphing calculator is a major emphasis in this course.

Algebra II w/Trigonometry (Accel) 241/242

Credit: 1	Level: IV
Grade Offered: 9, 10	Annual MA7246 MA7247
11	Annual MA7241 MA7242
Prerequisite: Geometry (Accel)	

This course presents the topics contained in Algebra II w/Trigonometry and also includes the topics of polynomial functions, logarithmic functions, sequences, series, elementary probability, and rational functions. Problem solving with the graphing calculator is a major emphasis in this course.

Algebra II w/Trigonometry (Hon) 251/252

Credit: 1	Level: V
Grade Offered: 9, 10	Annual MA8256 MA8257
11	Annual MA8251 MA8252
Prerequisite: Geometry (Accel) or Geometry (Honors)	

This course presents the topics contained in Algebra II w/Trigonometry and also includes the topics of polynomial functions, logarithmic functions, sequences, series, elementary probability, and rational functions. Problem solving with the graphing calculator is a major emphasis in this course.

- **Independent Study** Under specific conditions as outlined on p. 25 of the **Guide**, students may make application for Independent Study. In all cases, students must secure parent, teacher, counselor, divisional, and building administration approval. Independent Study may not be taken as an 8th semester/annual course.

Geometry (Prep) 131/132

Credit: 1	Level: III
Grade Offered: 10	Annual MA5136 MA5137
Prerequisite: Algebra (Prep)	

In this course, we will learn about and investigate the measurements and properties of lines, planes, angles, polygons, and solids as well as their interrelationships. This class will provide you the opportunity to grow as a critical-thinker and problem-solver all while applying your pre-existing knowledge of algebra to geometric concepts. We will utilize a variety of methods of logical thinking to write the following types of proofs: 2-column, paragraph, flow, and coordinate proofs.

Geometry (Hon) 151/152

Credit: 1	Level: V
Grade Offered: 9, 10	Annual MA8166 MA8167
Prerequisite: Algebra (Accel)	

This course includes all the topics in Geometry (Accel) at a greater depth and faster pace. Students in this course will study coordinate geometry problems, locus problems, and various enrichment topics. Additionally, right triangle trigonometry and conics will be investigated. Material covered in this course will help prepare students for college level calculus courses.

Geometry (Accel) 141/142

Credit: 1	Level: IV
Grade Offered: 9, 10	Annual MA7146 MA7147
Prerequisite: Algebra (Accel)	

In this course, we will learn about and investigate the measurements and properties of lines, planes, angles, polygons, and solids as well as their interrelationships. This class will provide you the opportunity to grow as a critical-thinker and problem-solver all while applying your pre-existing knowledge of algebra to geometric concepts. We will utilize a variety of methods of logical thinking to write the following types of proofs: 2-column, paragraph, flow, and coordinate proofs.

Pre-Calculus (Prep) 331/332

Credit: 1
Grade Offered: 11, 12

Level: III
Annual MA6331
MA6332

Prerequisite: Algebra II (Prep) or (Accel)
with a C or better

This course is an extensive study of functions including trigonometric, linear, quadratic, polynomial, rational, exponential, logarithmic, and sequences. In addition, the topics of complex numbers, polar graphs, vectors, parametrics, limits, and continuity are studied. This is an extremely rigorous course and students who do not complete Advanced Algebra w/Trigonometry (Accel) with a B or better are cautioned about enrolling in the course. Students who complete this course with an above average grade of B or higher will be prepared for Calculus in college.

Pre-Calculus (Accel) 341/342

Credit: 1
Grade Offered: 11, 12

Level: IV
Annual MA7341
MA7342

Prerequisite: Algebra II (Accel)

This course is an extensive study of functions including trigonometric, linear, quadratic, polynomial, rational, exponential, logarithmic, and sequences. In addition, the topics of complex numbers, polar graphs, vectors, parametrics, limits, and continuity are studied. This is an extremely rigorous course and students who do not complete Advanced Algebra w/Trigonometry (Accel) with a B or better are cautioned about enrolling in the course. Students who complete this course with an above average grade of B or higher will be prepared for Calculus in college.

Pre-Calculus (Hon) 351/352

Credit: 1
Grade Offered: 10
11, 12

Level: V
Annual MA8356
MA8357
MA8351
MA8352

Prerequisite: Algebra II (Accel) and Geometry (Accel)

This course is an extensive study of functions, advanced topics in trigonometry, matrices, combinatorics, statistics, and other topics in discrete mathematics. Calculator graphing technology is incorporated into the class in order to learn mathematics from a multifaceted approach.

Mathematics Classes

When choosing Annual Courses, you will need the first and second semester codes.

Freshman Courses

Annual

MA4136/7	Algebra Prep 131/132
MA4146/7	Algebra Accel 141/142
MA7146/7	Geometry Accel 141/142
MA8166/7	Geometry Honors 151/152

Sophomore Courses

Annual

MA4146/7	Algebra Accel 141/142
MA4136/7	Algebra Prep 131/132
MA6236/7	Algebra II w/Trig Prep 231/232
MA7246/7	Algebra II w/Trig Accel 241/242
MA8256/7	Algebra II w/Trig Honors 251/252
MA5136/7	Geometry Prep 131/132
MA7146/7	Geometry Accel 141/142
MA8166/7	Geometry Honors 151/152
MA8356/7	Pre-Calculus Honors 351/352
MA7341/2	Pre-Calc Accel 341/342

Staggered Semester

Fall only

MA4936	Algebra Prep 132 (staggered)
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Spring only

MA4937	Algebra Prep 131 (staggered)
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Junior and Senior Courses

Annual

MA4136/7	Algebra Prep
MA6231/2	Algebra II w/Trig Prep 231/232
MA7241/2	Algebra II w/Trig Accel 241/242
MA9551/2	AP Calculus AB
MA9651/2	AP Calculus BC
MA6331/2	Pre-Calculus Prep 331/332
MA8351/2	Pre-Calculus Honors 351/352
MA7341/2	Pre-Calculus Accel 341/342
MA9451/2	AP Statistics
MA6321/2	College Algebra (Senior only)

Fall or Spring

MA5551/2	Career Internship
MA6311/2	Financial Algebra

Fall only

MA9951	Linear Algebra
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Spring only

MA9852	Calculus III
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