

**ACADEMY FOR BUSINESS & TECHNOLOGY\***  
 \*A charter school of Eastern Michigan University, Ypsilanti, Michigan  
 Melvindale, MI

**Curriculum Guide—Department of Mathematics**

**Courses:**

Course Number	Recommended Grade	Course Title	Prerequisite
	7	7 <sup>th</sup> Math	
	7	7 <sup>th</sup> Math Lab	
	8	8 <sup>th</sup> Math	
	8	8 <sup>th</sup> Math Lab	
	8	Pre-Algebra	
	8	Algebra I	Teacher Recommendation
	9	Algebra I	
	10	Geometry	Algebra I
	11-12	Algebra II	Geometry
	11-12	Functions, Stats, Trigonometry	Algebra II
	11-12	Pre-Calculus	Functions, Stats, Trigonometry, Algebra II
	11-12	Calculus	Pre-Calculus

**Teachers Credential Requirement:**

	EX	<b>Mathematics</b> Arithmetic Number theory Pre-algebra Algebra Geometry	Calculus Statistics College algebra Trigonometry Solid geometry

**Course Descriptions--Math**

**BASIC MATH 7, 8**

**1 credit**

Students develop basic mathematical skills such as multiplying, dividing, adding, and subtracting of whole numbers, fractions, and decimals. Students will study the concepts of percents, ratios, and proportions. Measurement, basic geometry, and basic algebra will also be introduced.

**MATH LAB 7, 8**

**1 credit**

Taking what the students learn in Basic Math, this course reviews the concepts using hands-on activities, Study Island, & power point presentations.

**PRE-ALGEBRA**

**1 credit**

Pre-Algebra is the continuation of Basic Math. In this course students will review all the concepts in basic math such as ratio, percent, proportion, fractions, and integers. Students will also be introduced to variable expressions, equations, and the coordinate plane. This course is designed to prepare students for Algebra.

**ALGEBRA**

**1 credit**

The main goal of Algebra is to develop fluency in working with linear equations. Students will extend their experiences with tables, graphs, and equations and solve linear equations and inequalities and systems of linear equations and inequalities. Students will extend their knowledge of the number system to include irrational numbers. Students will

generate equivalent expressions and use formulas. Students will simplify polynomials and begin to study quadratic relationships. Students will use technology and models to investigate and explore mathematical ideas and relationships and develop multiple strategies for analyzing complex situations. Students will analyze situations verbally, numerically, graphically, and symbolically. Students will apply mathematical skills and make meaningful connections to life's experiences.

## **ADVANCED ALGEBRA**

**1 credit**

Advanced Algebra takes all concepts covered in algebra and looks into their applications. This course emphasizes algebraic expressions and forms, especially linear and quadratic forms, powers and roots, and functions based on these concepts. Students study logarithmic, trigonometric, polynomial and other special functions for modeling real world situations. Students will need a scientific or graphing calculator for this course.

## **GEOMETRY**

**1 credit**

Geometry continues all the pre-geometry covered in Basic Math and Algebra. In this course students will learn basic concepts, angles, reasoning and proofs, perpendicular and parallel lines. This course will investigate quadrilaterals, polygons, and triangles. Perimeter, area, and volume of basic geometric figures will also be discussed. Students will be introduced to right triangle trigonometry, coordinate geometry, and transformations. Students will need a scientific or graphing calculator for this course.

## **FUNCTIONS, STATISTICS, AND TRIGONOMETRY**

**1 credit**

Functions, Statistics, and Trigonometry integrate statistical and algebraic concepts, and previews calculus in work with functions and intuitive notions of limits. This course will prepare student for Pre-Calculus. Students will need a graphing calculator for this course.

## **PRE-CALCULUS**

**1 credit**

In this course students will discuss limits, derivatives, and integrals. This course is intended for students pursuing a career in math or science.

## **CALCULUS**

**1 credit**

This course is for students working on a degree in mathematics, chemistry, biochemistry, or physics, and for others who are simply interested. It also satisfies calculus requirements in other majors such as biology and business. The prerequisite is Pre-calculus. This is a skills-oriented course: you are required to remember the algebra and trigonometry you learned in previous courses. It is also an applications course: knowing what the tools and procedures are good for is important. Finally, it is a theory course: understanding concepts, terminology, and notation will be emphasized. Calculus opens the door to higher mathematics.