MATHEMATICS (MTH)

MTH 011 - MTH 111 Support
Credit Hours: 2, **Contact Hours: 2**
Division: Science Math
MTH 111 Support will focus on essential algebra skills needed for success in Intermediate Algebra. Course is for students concurrently enrolled in MTH 111. Support topics include order of operations, dimensional analysis, properties of exponents, polynomial and rational expressions, linear and quadratic equations, proportions, graphing techniques, factoring, applications, and growth mindset/college readiness.
Required Prerequisite(s): A grade of 2.0 or better in MTH 100 or appropriate placement score

Recommended Prerequisite(s): High school algebra and geometry

Corequisites: MTH 111

MTH 020 - MTH 120 Support
Credit Hours: 2, **Contact Hours: 2**
Division: Science Math
MTH 120 Support will focus on essential arithmetic, algebraic, and geometric skills needed for success in MTH 120. This course is for students concurrently enrolled in Math 120. Support topics include order of operations, properties of exponents, geometry, fractions, dimensional analysis, linear equations, proportions, basic graphing techniques, applications, and growth mindset/college readiness.
Required Prerequisite(s): A grade of 2.0 or higher in MTH 100 or appropriate placement score

Recommended Prerequisite(s): High school algebra and geometry

Corequisites: MTH 120

MTH 021 - MTH 121 Support
Credit Hours: 2, **Contact Hours: 2**
Division: Science Math
MTH 121 Support will focus on essential algebra skills needed for success in College Algebra. Course is for students concurrently enrolled in Math 121. Support topics include factoring, solving linear and quadratic equations, order of operations, properties of exponents, polynomial and rational equations, linear and quadratic equations, set notation, functions, complex numbers, logarithms, and applications.
Required Prerequisite(s): Appropriate placement score

Recommended Prerequisite(s): MTH 111

Corequisites: MTH 121

MTH 031 - MTH 131 Support
Credit Hours: 2, **Contact Hours: 2**
Division: Science Math
MTH 131 Support will focus on essential algebra skills needed for success in MTH 131. Course is for students concurrently enrolled in Math 131. Support topics include percentages, decimals, fractions, reading and creating graphs, interpreting and calculating measures of center and variation, and create and interpret scatter plots, the line of best fit, and the slope and y intercept in context, and using statistical software. Growth mindset and college readiness will be addressed throughout the course.
Required Prerequisite(s): A grade of 2.0 or better in MTH 100 or appropriate placement score

Recommended Prerequisite(s): College level reading

Corequisites: MTH 131

MTH 100 - Quantitative Literacy
Credit Hours: 4, **Contact Hours: 4**
Division: Science Math
Quantitative Literacy focuses on developing mathematical maturity through problem solving, critical thinking, writing, and communication of mathematics. It integrates numeracy, proportional reasoning, algebraic reasoning, and functions with statistics and geometry as recurring course themes. Throughout the course, college success components are integrated with the mathematical topics. Group 2 course.
Required Prerequisite(s): Appropriate placement score

Recommended Prerequisite(s): High school algebra and geometry

MTH 111 - Intermediate Algebra
Credit Hours: 4, **Contact Hours: 4**
Division: Science Math
Intermediate Algebra covers elementary set notation, a description of the Real number system, its major subsets, and an introduction to the Complex number system. Simplifying exponents, and algebraic expressions. Solving linear, quadratic, rational, and radical equations. Linear inequalities and systems of equations are also solved. The function concept is referenced throughout including the graphical, symbolic and numerical representations. Group 2 course.
Required Prerequisite(s): Placement into MTH 111

Recommended Prerequisite(s): Placement into ENG 111

MTH 120 - Mathematical Explorations
Credit Hours: 3, **Contact Hours: 3**
Division: Science Math
This course is designed to meet the MTA graduation requirements in math for students whose programs of study have no further math requirements. This course is designed to develop quantitative reasoning skills as applied to personal and social issues. Topics will convey to the student the beauty and utility of mathematics, and its applications to modern society. Core topics include logic, models of growth (linear & exponential), personal finance, basic statistics and probability. Group 1 course. Quantitative Reasoning.
Required Prerequisite(s): Placement into MTH 120

Recommended Prerequisite(s): High school algebra and geometry; Placement into ENG 111

MTH 121 - College Algebra
Credit Hours: 4, **Contact Hours: 4**
Division: Science Math
This course covers algebra topics including functions, mathematical models, solving equations algebraically and graphically, polynomial functions, logarithmic functions, exponential functions, inverse functions, and linear and non-linear systems of equations. Applications are integrated throughout. Group 1 course. Quantitative Reasoning.
Required Prerequisite(s): A grade of 2.0 or better in MTH 111 or higher (excluding MTH 120 and MTH 131) or appropriate placement.

Recommended Prerequisite(s): Placement into ENG 111

MTH 122 - Trigonometry
Credit Hours: 3, **Contact Hours: 3**
Division: Science Math
This course covers the definitions and graphic representations of the trigonometric functions. Triangles, angle measure, equations, identities, and inverse functions are discussed in detail. Law of Sines, Law of Cosines, and equations of the conic sections will also be covered. Group 1 course. Quantitative Reasoning.
Required Prerequisite(s): A grade of 2.0 or better in MTH 121 or higher (excluding MTH 131) or appropriate placement.

Recommended Prerequisite(s): Placement into ENG 111

MTH 131 - Intro to Prob & Stats
Credit Hours: 3, **Contact Hours: 3**
Division: Science Math
Descriptive statistics, experimental design, an introduction to probability concepts and inferential statistics are included in the course. Descriptive statistics includes graphs of both numerical and categorical data, measures of central tendency, and measures of variation. The normal density function, linear regression, and the binomial model are included. One and two sample problems involving confidence intervals and significance tests are studied for the sample mean and the sample proportion. Group 1 course. Quantitative Reasoning.
Required Prerequisite(s): Placement into MTH 111 or MTH 120 or higher or appropriate placement.

Recommended Prerequisite(s): Placement into ENG 111

MTH 141 - Calculus I
Credit Hours: 5, **Contact Hours: 5**
Division: Science Math
This is the first course in a traditional calculus sequence, emphasizing the development of the mathematical thought process. The topics covered include limits (definitions and limit proofs), continuity, derivatives of algebraic and trigonometric functions, applications of the derivative, the indefinite and definite integral, the fundamental theorem of calculus, and applications of integration. Group 1 course. Quantitative Reasoning.
Required Prerequisite(s): A grade of 2.0 or better in MTH 122 or higher (excluding MTH 131) or appropriate placement.

Recommended Prerequisite(s): Placement into ENG 111

MTH 142 - Calculus II
Credit Hours: 5, **Contact Hours: 5**
Division: Science Math
This course is a continuation of Calculus I. The topics include differentiation and integration involving exponential, logarithmic, and inverse trigonometric functions. There is an introduction of various integration methods. L'Hospital's Rule, improper integrals, parametric equations, polar coordinates, and infinite sequences and series are also investigated. Group 1 course. Quantitative Reasoning.
Required Prerequisite(s): A grade of 2.0 or better in MTH 141 or equivalent.

Recommended Prerequisite(s): Placement into ENG 111

MTH 241 - Calculus III
Credit Hours: 5, **Contact Hours: 5**
Division: Science Math
The course covers multivariable calculus including three-dimensional analytical geometry, vector valued functions, partial differentiation, and multiple integration (with applications of each), and vector calculus. Group 1 course. Quantitative Reasoning.
Required Prerequisite(s): A grade of 2.0 or better in MTH 142 or equivalent.

Recommended Prerequisite(s): Placement into ENG 111

MTH 251 - Differential Equations
Credit Hours: 4, **Contact Hours: 4**
Division: Science Math
This course introduces the concepts of differential equations. Topics include: solving first and second order differential equations, and systems of linear differential equations. Solutions are found using analytical, numerical, or graphical techniques relating to quantitative modeling. Laplace transforms and solving non-linear differential equations are introduced. Complex numbers and their usefulness in solving differential equations is identified. Linear algebra is introduced including the topics of; vector spaces, subspaces, spanning sets, linear dependence and independence, basis and dimensions, eigenvalues, eigenvectors, and linear transformations. Group 1 course. Quantitative Reasoning.
Required Prerequisite(s): A grade of 2.0 or better in MTH 142 or equivalent.

Recommended Prerequisite(s): Placement into ENG 111