MATHEMATICS (MTH)

MTH 004. Hands-On Arithmetic Workshop. 3 Credit Hours.
Hands-On Arithmetic Workshop is designed to help students experiencing difficulty with mathematics in general and arithmetic in particular. Students progress at their own pace using manipulatives in a guided discovery mode to gain an understanding of numbers, arithmetic operations (on whole numbers, integers, fractions, decimals, and involving percents) and metric measurement. Additional lab hours required.
Prerequisites: RDG 020 and ENG 020.

MTH 020. Pre Algebra. 3 Credit Hours.
This course is for students who need to review the basic fundamentals of mathematics. Topics include operations on whole numbers, fractions, decimals, percents, signed numbers, word problem applications and an introduction to algebra.

MTH 025. Hands-On Algebra Workshop. 3 Credit Hours.
The purpose of Hands-On Algebra Workshop is to help students who have experienced great difficulty with mathematics in general and algebra in particular. Working individually and in small groups, students use various mathematics manipulatives in a guided discovery mode to explore algebraic concepts in order to gain an understanding of integers, linear equations, polynomials, graphing, and functions. In this hands-on lab course, students proceed at their own pace. This course does not replace Elementary Algebra. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 020 with grade of "C" or better or satisfactory score on the placement test and an appropriate score on Reading and English on the placement test.

MTH 030. Elementary Algebra. 3 Credit Hours.
This course covers basic algebra. Topics include operations on polynomials, factoring polynomials, linear equations and their applications, graphing lines and solving equations. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 020 with grade of "C" or better or satisfactory score on the placement test, and RDG 020 with a grade of "C" or better or satisfactory score on placement test.

MTH 040. Elementary Algebra and Basic Math. 5 Credit Hours.
This course covers the basics of fundamental mathematics and algebra. Topics include operations on whole numbers, fractions, decimals, percents, signed numbers, word problem applications, operations on polynomials, factoring polynomials, linear equations and their applications, graphing lines and solving equations.
Prerequisite: RDG 020.

MTH 050. Mathematical Literacy. 3 Credit Hours.
Mathematical Literacy will provide students with the skills and conceptual understanding to succeed in college-level mathematics courses. The course will help students develop conceptual understanding and acquire multiple strategies for solving application problems. It contains such topics as numeracy, proportional reasoning, algebraic reasoning, probability, sets, interpreting tables and graphs, and graphs of linear equations.
Prerequisites: MTH 020 with grade of "C" or higher or satisfactory score on placement test, and Reading Proficiency.

MTH 056. Principles of Quantitative Reasoning. 2 Credit Hours.
Principles of Quantitative Reasoning is a co-requisite course for MTH 161, Quantitative Reasoning, for students with Learning Support Mathematics requirements. This course is designed to support the content covered in MTH 161 by addressing deficiencies in skills required for the topics in MTH 161. Co-requisite: MTH 161.
Prerequisite: Reading Proficiency.

MTH 058. Principles of Introductory Statistics. 2 Credit Hours.
Principles of Introductory Statistics is a co-requisite course for MTH 180, Introductory Statistics, for students with Learning Support Mathematics requirements. This course is designed to support the content covered in MTH 180 by addressing deficiencies in skills required for the topics in MTH 180. Co-requisite: MTH 180.
Prerequisite: Reading Proficiency.

MTH 108. Elementary Applied Mathematics. 3 Credit Hours.
This course will include a review of fractions, decimals and percents. Topics may include ratios, proportions, measurements, metrics, powers, roots, simple equations, estimation, graphs, and applications relevant to many Associate in Applied Science programs. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 020 with a grade of "C" or better or satisfactory score on placement test and Reading Proficiency.

MTH 123. Introduction to the Texas Instruments Graphing Calculator. 1 Credit Hour.
This course is designed for students who will be using a graphing calculator in their math and science course work. Students will be introduced to the use of the TI-83 plus graphing calculator. Students will learn to perform basic computations, graph functions, create tables and use stat plots to graph data. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: Placement into MTH 140 or completion of MTH 030 or MTH 050 with a grade of "C" or better and Reading Proficiency.

MTH 124. Technical Mathematics I. 3 Credit Hours.
This course includes operations on algebraic expressions, solving linear equations, the Cartesian coordinate system in two dimensions, slope of a line, and graphing techniques. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 030 or MTH 050 with a grade of "C" or better or satisfactory score on placement test and Reading Proficiency.

MTH 140. Intermediate Algebra. 3 Credit Hours.
Intermediate Algebra provides the transition from the Math Literacy Course into the Precalculus Algebra course. Operations on rational expressions, operations on radicals, solving quadratic equations, and the rectangular coordinate system are among the topics covered. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 030 or MTH 040 or MTH 050 with a grade of "C" or better or satisfactory score on placement test and Reading Proficiency.

MTH 160. Precalculus Algebra (MOTR MATH 130). 4 Credit Hours.
Precalculus Algebra is a college algebra course and one of the prerequisites on the STEM pathway leading to Calculus. It includes the following topics: theory of equations; functions and graphs including circles, ellipses, parabolas, hyperbolas, polynomials, rationals, exponentials, and logarithms; systems of equations and inequalities; and matrices. Applications will be primarily from science and business. Credit will be granted for only one of the following MTH 160, MTH 160A, MTH 160B, MTH 160C or MTH 185. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 140 with a grade of "C" or better or satisfactory score on placement test, and Reading Proficiency.

MTH 161. Quantitative Reasoning (MOTR MATH 120). 4 Credit Hours.
Quantitative Reasoning provides a comprehensive overview of the quantitative skills required to navigate the mathematical demands of modern life and to prepare students for a deeper understanding of information presented in mathematical terms. Emphasis is placed on improving students' ability to draw conclusions, make decisions, and communicate effectively in quantitative-based situations that depend upon multiple factors.
Prerequisites: MTH 050 with a minimum grade of "C" or satisfactory scores on placement test, and Reading Proficiency.
MTH 165. Structures of Mathematical Systems I. 3 Credit Hours.
Introduction to problem solving and logic. A study of the development and construction of mathematical systems, including whole numbers, integers, and rational numbers. Suggested for students planning to transfer into early childhood education, elementary education, or special education programs. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 160, MTH 160A, MTH 160B or MTH 160C with a grade of "C" or better or satisfactory score on placement test and Reading Proficiency.

MTH 166. Structures of Mathematical Systems II. 3 Credit Hours.
Continuation of MTH 165. Includes an intuitive study of elementary geometry, the deductive theory of geometry, graphing, probability and statistics, with applications in the area of elementary education. Suggested for students planning to transfer into early childhood, elementary education, or special education programs. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 165 with a grade of "C" or better and Reading Proficiency.

MTH 170. Precalculus Trigonometry. 3 Credit Hours.
Precalculus Trigonometry is a trigonometry course and one of the prerequisites on the STEM pathway leading to calculus. It uses an analytic approach to the definitions and graphs of the functions of an angle. It includes formulas and identities, trigonometric functions, inverse functions, and radian measure. Note Credit will not be granted for both MTH 170 and MTH 185. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 160, MTH 160A, MTH 160B or MTH 160C with grade of "C" or better or satisfactory score on placement test, and Reading Proficiency.

MTH 177. Finite Mathematics. 4 Credit Hours.
Finite Mathematics is the study of the mathematics of finance, matrices, linear programming, and probability, as well as the use of these concepts to model several types of applications. Prerequisite courses must have been completed within the last three years.
Prerequisites: MTH 160, MTH 160A, MTH 160B or MTH 160C with grade of "C" or better and Reading Proficiency.

MTH 180. Introductory Statistics (MOTR MATH 110). 4 Credit Hours.
Introductory Statistics introduces the student to the elementary mathematics of descriptive statistics, probability, and statistical inference. Topics include methods of data collection, organization, and representation, measures of center and variation, elementary probability theory, probability distributions, the central limit theorem, confidence intervals, hypothesis testing, correlation, and regression analysis.
Prerequisites: MTH 050 with a minimum grade of "C" or satisfactory scores on placement test, and Reading Proficiency.

MTH 185. Precalculus (MOTR MATH 150). 5 Credit Hours.
Precalculus is one of the prerequisites on the STEM pathway leading to calculus. This course is a unified study of college algebra and trigonometry. Emphasis is placed on the development of algebraic and trigonometric concepts. The topics include: algebraic, exponential, logarithmic and trigonometric functions and graphs thereof; equations and graphs of the conic sections; the solving of algebraic and trigonometric equations; systems of equations; and trigonometric identities. Note: Students will be granted credit for either MTH 185, or MTH 160 and MTH 170. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 140 with a grade of "C" or better or satisfactory score on placement test, and Reading Proficiency.

MTH 186. Survey of Calculus. 4 Credit Hours.
Topics included are limits and continuity of functions of a single variable; derivatives and antiderivatives of algebraic, exponential, and logarithmic functions; and business oriented applications. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 160, MTH 160A, MTH 160B or MTH 160C with grade of "C" or better and Reading Proficiency.

MTH 210. Analytic Geometry and Calculus I. 5 Credit Hours.
This course is the first part of a three semester sequence of Calculus. Topics included are limits and continuity of functions of a single variable, derivatives and antiderivatives of algebraic functions and trigonometric functions, and applications. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 185 or (MTH 160, MTH 160A, MTH 160B or MTH 160C and MTH 170) with grades of "C" or better or satisfactory score on placement test and Reading Proficiency.

MTH 212. Discrete Mathematics. 3 Credit Hours.
Students will learn topics in discrete mathematics that are particularly relevant to computer science. Topics include logic, elementary number theory, modular arithmetic, methods of proof, sets, probability and combinatorics, recurrence relations, algorithmic efficiency, elementary graph theory, and trees. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 210 or equivalent with a grade of "C" or better and Reading Proficiency.

MTH 215. Linear Algebra. 3 Credit Hours.
This course covers systems of linear equations, properties of matrices and determinants, vector spaces, linear transformations, inner products, and eigenvalues, as well as selected applications. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 210 with a grade of "C" or better and Reading Proficiency.

MTH 220. Analytic Geometry and Calculus II. 5 Credit Hours.
This course is the second part of a three sequence of Calculus. Differentiation and integration of transcendental functions, techniques of integration, improper integrals, parametric equations, polar coordinates, and infinite and power series are among the topics covered. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 210 with a grade of "C" or better and Reading Proficiency.

MTH 230. Analytic Geometry and Calculus III. 5 Credit Hours.
This course is the third part of a three semester sequence of Calculus. Topics covered include solid analytic geometry, vectors in two and three dimensions, differential calculus of multivariate functions, partial derivatives, directional derivatives, gradients, multiple integration, and an introduction to the calculus of vector fields. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 220 with a grade of "C" or better and Reading Proficiency.

MTH 240. Differential Equations. 3 Credit Hours.
This course introduces methods of solving ordinary differential equations. Topics included are first order differential equations, higher order differential equations, Laplace transform methods, systems of differential equations, and applications. All prerequisite courses must have been completed within the last 3 years.
Prerequisites: MTH 230 with a grade of "C" or better and Reading Proficiency.