MATHEMATICS (MATH)

MATH A - Instruction with Algebra (0) [2]
(formerly MA A)
Supplements MATH 101A and MATH 120A.

MATH S - Algebraic Support (0) [3]
(formerly MA S)
Supplements MATH 145S.

MATH 50 - Preparation for College Mathematics (0) [2]
Prerequisite: Completion of math placement test
Develops foundational math skills needed for college math courses such as MATH 101A Foundations of Math with Algebra, MATH 120A Statistics with Algebra, or MATH 145S College Algebra with Algebraic Support. Topics include whole numbers, factors, fractions, decimals, percentages, signed numbers, introduction to data analysis and statistics, and basic Algebra skills such as working with variables and evaluating variable expressions. Further topics may include solving and graphing linear equations, exponents, and polynomials. Technology is integrated with traditional skill practice throughout the course.

MATH 101 - Foundations of Mathematics (3)
Gen Ed Math
Prerequisite: Grade of C or better in MATH S or appropriate score on mathematics placement test
(formerly MA 103)
MATH 101 Presents topics including problem solving strategies, logic, numeration systems, set theory, classification of numbers, algebra, financial management, geometry, measurement and right triangle trigonometry, probability, statistics, graphs, systems of equations, and linear programming. Student cannot receive credit for both MATH 101 and MATH 101A. Intended for students who need a survey of math principles for their non-STEM major/program. Not intended for students planning to pursue a STEM program.

MATH 101A - Foundations of Mathematics (3)
Gen Ed Math
Prerequisites: Grade of B or better in MATH 50 or grade of SC in ADB 490 or appropriate score on mathematics placement test
(formerly MA 103A)
MATH 101A Presents topics including real numbers, algebraic expressions, solving and graphing linear equations, exponents, and logarithmic equations with an emphasis on functions, graphing, and modeling. Topics of college math covered may include problem solving strategies, logic, numeration systems, classification of numbers, algebra, financial management, geometry, measurement and right triangle trigonometry, probability, statistics, graphs, systems of equations, and linear programming. Students cannot receive credit for both MATH 101 and MATH 101A. Intended for students who need a survey of college math principles, with algebra, for their non-STEM major/program. Not intended for students planning to pursue a STEM program.

MATH 110 - Fundamental Concepts of Mathematics I (4)
Gen Ed Math
Prerequisite: Appropriate score on mathematics placement test
(formerly MA 105)
Note: MATH 110 is designed and recommended for Education majors in the Early Childhood Education and Elementary Education A.A.T. degrees only. Provides a comprehensive, conceptually-based background in elementary mathematics. Topics include historical development of numeration systems, decimal notation, arithmetic algorithms in decimal and other bases, elementary set theory and number theory. Intended for early childhood and elementary education students, or other non-STEM majors, who need a general course in problem-solving strategies, numeracy, and the real number system.

MATH 113 - Fundamental Concepts of Mathematics II (4)
Prerequisite: Appropriate score on mathematics placement test. It is recommended that students complete MATH 110 (formerly MA 105) before taking this course.
(formerly MA 106)
Presents topics including plane and solid, metric and non-metric, dimensional analysis, congruence and similarity, and coordinate and transformational geometry. Emphasizes problem solving strategies. MATH 113 is not a general education course. Intended for early childhood education and elementary education students who need a conceptually-based study of the fundamentals of geometry.

MATH 120 - Statistics (3)
Gen Ed Math
Prerequisite: Grade of C or better in MATH S or appropriate score on mathematics placement test
(formerly MA 206)
MATH 120 Introduces non-calculus statistics. Topics include descriptive analysis and treatment of data, probability, statistical inference, linear regression and correlation, and chi-square tests and non-parametric tests. Students can only receive credit for one of the following: MATH 120 or MATH 120A or MATH 127.

MATH 120A - Statistics (3)
Gen Ed Math
Prerequisites: Grade of B or better in MATH 50 or grade of SC in ADB 490 or appropriate score on mathematics placement test
(formerly MA 206A)
MATH 120A Combines an introductory non-calculus statistics course with topics from Algebra. Topics of Algebra include linear equations and inequalities, and graphing and modeling functions. Topics of Statistics include descriptive analysis and treatment of data, probability, statistical inference, linear regression and correlation, chi-square tests, and non-parametric tests. Students can only receive credit for one of the following: MATH 120 or MATH 120A or MATH 127.

MATH 125 - Business Statistics (3)
Gen Ed Math
Prerequisites: (Grade of C or better in MATH S or appropriate score on mathematics placement test) and (CMIS 101 or BMGT 100 or CMIS 111E or CIS 116E) and (placement in ENGL 70 or ESOL 100 or higher on the reading placement test)
(formerly BU/MA 205)
Introduces non-calculus statistics for business using spreadsheets. Topics include descriptive analysis and treatment of data, probability, statistical inference, linear regression and correlation, and chi-square tests and non-parametric tests.

MATH 127 - Statistics with Probability (4)
Gen Ed Math
Prerequisite: Grade of C or better in MATH S or appropriate score on mathematics placement test
(formerly MA 207)
Introduces non-calculus statistics with additional topics in elementary probability. Statistical topics include descriptive analysis and treatment of data, statistical inference, linear regression and correlation, and chi-square tests. Topics from Elementary Probability include basic event and outcome concepts, fundamental rules of probability, random variables and their distributions, and expectation. Practical applications of the course concepts are explored through team projects. Students cannot receive credit for both MATH 127 and MATH 120/MATH 120A.

MATH 145 - College Algebra (3)
Gen Ed Math
Prerequisite: Grade of C or better in MATH S or appropriate score on mathematics placement test
(formerly MA 130)
MATH 145 Includes a study of function behavior, composition, and inverse using linear, polynomial, rational, and radical functions; definition and analysis of exponential and logarithmic functions, complex numbers, formulae of midpoint, and distance and average rate of change. Students cannot receive credit for both MATH 145 and MATH 145S.

MATH 145S - College Algebra (3)
Gen Ed Math
Prerequisite: Grade of B or better in MATH 50 or grade of SC in ADB 490 or appropriate score on mathematics placement test
(formerly MA 130S)
MATH 145S Combines College Algebra with topics from Introductory and Intermediate Algebra. Introductory and Intermediate Algebra topics include linear equations, absolute value, quadratic functions, exponential functions, and polynomial functions with an emphasis on functions, graphing, and modeling. College Algebra topics extend Intro/Intermediate topics to include a study of function behavior, composition, and inverse using linear, polynomial, rational and radical functions; definition and analysis of exponential and logarithmic functions, and complex numbers. Students cannot receive credit for both MATH 145 and MATH 145S.

MATH 165 - Precalculus (4)
Gen Ed Math
Prerequisite: Grade of C or better in MATH 145 or MATH 145S or MA 130 or MA 130S OR appropriate score on the mathematics placement test
(formerly MA 111)
Includes topics from college algebra and trigonometry with a graphing approach such as right triangle trigonometry, circular trigonometric functions, inverse trigonometric functions, exponential functions, power functions, logarithmic functions, and polynomial functions and their zeros.

MATH 170 - Introduction to Discrete Mathematics (3)
Prerequisite: Grade of C or better in MATH 145 or MATH 145S or MA 130 or MA 130S OR appropriate score on mathematics placement test
(formerly MA 202)
Presents topics including sets and logic, elementary number theory, graph theory, matrices, algorithm design, mathematical induction and recursion. Intended for students pursuing a STEM major to develop their problem-solving skills.
This course is only offered in the Spring.

MATH 175 - Applied Calculus (3)
Gen Ed Math
Prerequisite: Grade of C or better in MATH 145 or MATH 145S or MA 130 or MA 130S or appropriate score on mathematics placement test
(formerly MA 201)
Presents methods for finding the derivatives and integrals of algebraic and transcendental functions with applications in each program. This course is a brief, applied version of traditional Calculus designed to help students understand how calculus is used in business, biology, and/or the social sciences. This course is not intended to replace traditional Calculus, nor can it be used as a prerequisite for Calculus I or Calculus II.

MATH 185 - Calculus I (4)
Gen Ed Math
Prerequisite: Grade of C or better in MATH 165 or MA 111
(formerly MA 210)
Presents topics including functions, limits, continuity, the derivative concept, differentiation techniques (including product rule, quotient rule, chain rule, and implicit differentiation), applications of the derivative, and definite and indefinite integral concepts. The Fundamental Theorem of Calculus is discussed and used in the context of introductory integration. Intended for students in mathematics, science, engineering, medical, and other technical programs as the first course in the three-semester calculus sequence (MATH 185, MATH 195, MATH 285).

MATH 195 - Calculus II (4)
Gen Ed Math
Prerequisite: Grade of C or better in MATH 185 or MA 210
(formerly MA 211)
Presents the second of three courses in the calculus sequence. Topics include methods and applications of integration, improper integrals, sequences and series, Taylor approximations, and an introduction to differential equations.

MATH 220 - Introduction to MATLAB (1)
Prerequisite or Co-requisite: MATH 185 or MA 210
(formerly MA 214)
Provides an introduction to MATLAB, a multi-paradigm numerical computing environment and fourth-generation programming language, including popular toolboxes. The course consists of interactive workshops with students doing sample MATLAB problems in real time. Problem-based MATLAB assignments are given which require significant time on MATLAB.

MATH 265 - Linear Algebra (4)
Prerequisite: Grade of C or better in MATH 185 or MA 210
(formerly MA 218)
Includes systems of linear equations, determinants, vectors in 2- and 3-space, vector spaces, linear transformations, eigenvalues and eigenvectors and applications.
This course is only offered in the Fall.

MATH 275 - Differential Equations (3)
Prerequisite: (Grade of C or better in MATH 195 or MA 211) AND (Prerequisite or Co-requisite: MATH 220 or MA 214)
(formerly MA 213)
Presents the principles involved in solving differential equations of order one. Topics covered include initial value problems, reduction of order, homogeneous linear equations, undetermined coefficients, systems of linear equations, power series solutions about ordinary points, Laplace transform, separable variables, linear and non-linear models, and variation of parameters.
This course is only offered in the Spring.

MATH 285 - Calculus III (4)
Prerequisite: Grade of C or better in MATH 195 or MA 211
(formerly MA 212)
Presents the final course in the three-semester calculus sequence.
Topics include functions of several variables and their graphs, vectors,
parametric equations, partial derivatives, multiple integrals and
applications, Green s Theorem, Stokes Theorem and the fundamental
theorem of line integrals.