

MATH COURSE STUDENT LEARNING OUTCOMES

MATH 19 - Fundamentals of College Mathematics I

Students will be able to formulate and use mathematical models to analyze real-world situations.

Students will be able to determine and implement an appropriate method of solution for financial problems.

Students will be able to solve basic probability problems.

MATH 20 - Learning Support for MATH 120/120E

Students will be able to perform operations of real numbers and apply properties of real numbers to demonstrate mathematical skills needed in MATH 120.

Students will be able to simplify algebraic expressions relevant to MATH 120.

Students will be able to construct and solve various equations relevant to MATH 120.

MATH 24 - Learning Support for Math 124/124E

Students will be able to manipulate and simplify algebraic expressions relevant to Math 124.

Students will be able to solve various types of equations and inequalities relevant for Math 124.

Students will be able to apply mathematical equations and formulas from MATH 124 to address real-world challenges and scenarios, including those related to finances.

Students will be able to graph functions through the process of computing a table of values, manually plotting these points, and by using a graphing calculator.

MATH 26 - Learning support for Math 126/126E

Students will be able to manipulate and simplify algebraic expressions relevant to Math 126.

Students will be able to solve various types of equations and inequalities relevant for Math 126.

Students will be able to solve basic real-life applications.

Students will be able to graph functions by plotting points and by graphing calculators.

MATH 90 - Continuing Studies in Math

Students will be able to perform the fundamental elementary algebra operation to place into MATH 095.

Students will be able to perform the fundamental intermediate algebra operations to place into MATH 096.

MATH 96 - Intermediate Algebra

Students will be able to simplify and perform operations with nonlinear expressions.

Students will be able to solve nonlinear equations using analytic methods.

Students will be able to use mathematical concepts in real world situations.

MATH 100 - Math for Allied Health and Public Safety Programs

Students will be able to apply ratio and proportion to problems in health sciences.

Students will be able to compute dosages.

Students will be able to convert between metric, household and Apothecary units.

MATH 105 - Applied Topics in Math

Students will be able to use proportions to solve basic applications.

Students will be able to convert between metric and English system units.

Students will be able to apply basic algebra and geometry to everyday applications.

MATH 106 - Geometry

Students will be able to construct simple geometric proofs.

Students will be able to demonstrate knowledge of the basic concepts of Euclidean geometry.

Students will be able to do basic geometrical constructions with a straight edge and ruler.

MATH 107 - Real Estate Math

Students will be able to compute taxes and commissions on a property sale.

Students will be able to compute the appreciation and depreciation in property values.

Students will be able to use percentages to solve real estate problems.

MATH 108 - Math for Technicians

Students will be able to apply trigonometry and basic geometry to technical problems.

Students will be able to convert between metric and standard units of measurement.

Students will be able to solve applied technical problems using ratios and proportions and simple algebra.

MATH 119 - Fundamentals of College Mathematics II

Students will be able to formulate and use mathematical models to analyze real-world situations.

Students will be able to determine and implement an appropriate method of solution for financial problems.

Students will be able to solve basic probability problems.

MATH 120 - Fundamentals of College Mathematics

Students will be able to solve basic problems in probability and statistics.

Students will be able to solve real world applications.

Students will be able to solve financial math problems.

MATH 122 - Number Concepts for Elementary School Teachers

Students will be able to communicate their mathematical thinking coherently and clearly to students, peers and others.

Students will be able to understand numbers, way of representing numbers, relationships among numbers and number systems.

Students will be able to use mathematical models to represent and understand quantitative relationships.

MATH 123 - Statistical & Geometrical Concepts for Elementary School Teachers

Students will be able to measure/calculate length, perimeter, capacity, weight, area volume, time, temperature and angle measures.

Students will be able to perform Euclidean constructions.

Students will be able to relate geometric ideas to number and measurement ideas.

Students will be able to apply formulas of statistics on small data sets including mean, mode, median, standard deviation, and range and interpret their meanings.

Students will be able to apply formulas and tree diagrams to calculate probabilities of simple or compound events.

MATH 124 - College Algebra

Students will be able to describe functions using multiple representations including tables, graphs, and algebraic equations.

Students will be able to create and solve quadratic equations for relevant applications.

Students will be able to create and solve exponential equations for relevant applications.

MATH 126 - Pre-Calculus I

Students will be able to algebraically analyze functions.

Students will be able to graphically analyze functions.

Students will be able to model real-life scenarios using functions.

Students will be able to solve systems of equations.

MATH 127 - Pre-Calculus II

Students will be able to convert between polar and Cartesian representations of points, graphs, and equations.

Students will be able to prove trigonometric identities.

Students will be able to solve equations involving trigonometric functions.

MATH 176 - Introductory Calculus for Business and Social Sciences

Students will be able to approximate and compute derivatives and integrals of functions of one variable.

Students will be able to interpret the concepts of calculus geometrically.

Students will be able to interpret the concepts of calculus in terms of models of natural and economic behavior.

MATH 181 - Calculus I

Students will be able to compute simple definite integrals by applying the Fundamental Theorem of Calculus and interpret the results.

Students will be able to compute the derivative of a function at a point and interpret the result as an instantaneous rate of change.

Students will be able to evaluate the limit of a function graphically, algebraically, and by using L'Hopital's rule.

Students will be able to compute derivatives using the rules for differentiation.

MATH 182 - Calculus II

Students will be able to develop an appropriate integral form to solve a specific applied problem in geometry, physics, or probability.

Students will be able to evaluate indefinite and definite integrals by selecting and correctly applying appropriate integration technique(s).

Students will be able to utilize appropriate theory and computational techniques to construct Taylor series with its interval of convergence for use in a variety of applications such as approximating values of a function, creating series for new functions, and studying the behavior or a function.

MATH 283 - Calculus III

Students will be able to apply the techniques of multivariable calculus to problem in mathematics, the physical sciences, and engineering.

Students will be able to compute derivatives and integrals of real valued and vector valued functions of several variables.

Students will be able to interpret geometrically the derivatives and integrals of real valued and vector valued functions of several variables.

MATH 285 - Differential Equations

Students will be able to formulate models of natural phenomena using differential equations.

Students will be able to interpret a differential equation qualitatively.

Students will be able to solve a variety of differential equations analytically and numerically.

MATH 295 - Proof Writing for Math/Stat Major

Students will be able to write cogent proofs using different methods: direct proof, indirect proof, proof by contradiction, proof by induction.

Students will be able to demonstrate an understanding of basic concepts about operations with sets and functions, including: one-to-one and onto functions, direct image and inverse image.

Students will be able to work with equivalence classes and identify the quotient set determined by an equivalence relation.

MATH 330 - Linear Algebra

Students will be able to compute eigenvalues, determine whether a matrix is diagonalizable, and if possible diagonalize it.

Students will be able to compute the dimension of a vector space, the rank of a matrix, or the span of a collection of vectors.

Students will be able to find or identify a basis for a vector space, use the Gram-Schmidt process to find an orthonormal basis, or carry out a change of basis.