

Course Offerings in Mathematics

MTH 098 – Elementary Algebra

This course provides a study of the fundamentals of algebra. Topics include the real number system, linear equations and inequalities, graphing linear equations and inequalities in two variables and systems of equations. This course does not apply toward the general core requirement for mathematics.

MTH 099 – Support for Intermediate College Algebra

This Learning Support course provides co-requisite support in mathematics for students enrolled in MTH 100 Intermediate College Algebra. Topics will parallel topics being studied in MTH 100 such as laws of exponents, polynomial operations, factoring polynomials, radical and rational expressions and equations, and quadratic equations, functions and relations. This course will enhance the essential quantitative skills needed to be successful in MTH 100. This course does not apply toward the general core requirements for mathematics.

MTH 100 – Intermediate College Algebra

PREREQUISITE: A grade of “C” or higher in MTH 098 or appropriate mathematics placement score is required. This course provides a study of algebraic concepts such as laws of exponents, polynomial operations, factoring polynomials, radical and rational expressions and equations, and quadratic equations. Functions and relations are introduced and graphed. This course does not apply toward the general core requirement for mathematics.

MTH 110 – Finite Mathematics

PREREQUISITE: All core mathematics courses in Alabama must have as a minimum prerequisite high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score. An alternative to this is that the student should successfully pass with a C or higher (S if taken as pass/fail) Intermediate College Algebra. The course includes sets, counting, permutations, combinations, basic probability (including Baye’s Theorem), and introduction to statistics (including work with Binomial Distributions and Normal Distributions), matrices and their applications to Markov chains and decision theory. Additional topics may include symbolic logic, linear models, linear programming, the simplex method and applications.

MTH 112 – Precalculus Algebra

PREREQUISITE: All core mathematics courses in Alabama must have as a minimum prerequisite high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score. An alternative to this is that the student should successfully pass with C or higher (S if taken as pass/fail) Intermediate College Algebra. This course emphasizes the algebra of functions – including polynomial, rational, exponential, and logarithmic functions. The course also covers systems of equations and inequalities, quadratic inequalities, and the binomial theorem. Additional topics may include matrices, Cramer’s Rule, and mathematical induction.

MTH 113 – Precalculus Trigonometry

PREREQUISITE: A minimum prerequisite of high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score is required. An alternative to this is that the student should successfully pass with a C or higher (S if taken as pass/fail) MTH 112. This course includes the study of trigonometric (circular functions) and inverse trigonometric functions, and includes extensive work with trigonometric identities and trigonometric equations. The course also covers vectors, complex numbers, DeMoivre’s Theorem, and polar coordinates. Additional topics may include conic sections, sequences, and using matrices to solve linear systems.

MTH 115 – Precalculus Algebra & Trigonometry

PREREQUISITE: A minimum prerequisite of high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score is required. An alternative to this is that the student should successfully pass with a C or higher (S if taken as pass/fail) MTH 100 and receive permission from the department chairperson. This course is a one semester combination of Precalculus Algebra and Precalculus Trigonometry intended for superior students. The course covers the following topics: the algebra of functions (including polynomial, rational, exponential, and logarithmic functions), systems of equations and inequalities, quadratic inequalities, and the binomial theorem, as well as the study of trigonometric (circular functions) and inverse trigonometric functions, and includes extensive work with trigonometric identities and trigonometric equations, vectors, complex numbers, DeMoivre’s Theorem, and polar coordinates. This course is offered upon sufficient enrollment.

MTH 116 – Mathematical Applications

This course provides practical applications of mathematics and includes selected topics from consumer math and algebra. Some topics included are integers, percent, interest, ratio and proportion, metric system, probability, linear equations, and problem solving.

MTH 125 – Calculus I

PREREQUISITE: A minimum prerequisite of high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score is required. An alternative to this is that the student should successfully pass with a C or higher MTH 113 or MTH 115. This is the first of three courses in the basic calculus sequence taken primarily by students in science, engineering, and mathematics. Topics include the limit of a function; the derivative of algebraic, trigonometric, exponential, and logarithmic functions; and the definite integral and its basic applications to area problems. Applications of the derivative are covered in detail, including approximations of error using differentials, maximum and minimum problems, and curve sketching using calculus.

MTH 126 – Calculus II

PREREQUISITE: A minimum prerequisite of high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score is required. An alternative to this is that the student should successfully pass with a C or higher MTH 125. This is the second of three courses in the basic calculus sequence. Topics include vectors in the plane and in space, lines and planes in space, applications of integration (such as volume, arc length, work and average value), techniques of integration, infinite series, polar coordinates, and parametric equations.

MTH 227 – Calculus III

PREREQUISITE: A grade of “C” or higher in MTH 126. This is the third of three courses in the basic calculus sequence. Topics include vector functions, functions of two or more variables, partial derivatives (including applications), quadric surfaces, multiple integration, and vector calculus including Green’s Theorem, Curl and Divergence, surface integrals, and Stokes’ Theorem.

MTH 231 – Mathematics for the Elementary Teacher I

PREREQUISITE: A grade of “C” or higher in MTH 100. This course is designed to provide appropriate insights into mathematics for students majoring in elementary education and to ensure that students going into elementary education are more than proficient at performing basic arithmetic operations. Topics include logic, sets and functions, operations and properties of whole numbers and integers including number theory; use of manipulatives by teachers to demonstrate abstract concepts; and by students while learning these abstract concepts as emphasized in the class. Upon completion, students are required to demonstrate proficiency in each topic studied as well as to learn teaching techniques that are grade level and subject matter appropriate, and test for mathematical proficiency and the learning of teaching concepts.

MTH 237 – Linear Algebra

PREREQUISITE: A grade of “C” or higher in MTH 126. This course introduces the basic theory of linear equations and matrices, real vector spaces, bases and dimension, linear transformations and matrices, determinants, eigenvalues and eigenvectors, inner product spaces, and the diagonalization of symmetric matrices. Additional topics may include quadratic forms and the use of matrix methods to solve systems of linear differential equations. This course is offered upon sufficient enrollment. This course is offered upon sufficient enrollment.

MTH 238 – Applied Differential Equations I

COREQUISITE: MTH 227. This course is an introduction to numerical methods, qualitative behavior of first order differential equations, techniques for solving separable and linear equations analytically, and applications to various models (e.g. populations, motion, chemical mixtures, etc.); techniques for solving higher order linear differential equations with constant coefficients (general theory, undetermined coefficients, reduction of order and the method of variation of parameters), with emphasis on interpreting the behavior of the solutions, and applications to physical models whose governing equations are of higher order; the Laplace transform as a tool for the solution of initial value problems whose inhomogeneous terms are discontinuous. This course is offered upon sufficient enrollment.

MTH 265 – Elementary Statistics

PREREQUISITE: A grade of “C” or higher in MTH 100. This course provides an introduction to methods of statistics, including the following topics: sampling, frequency distributions, measures of central tendency, graphic representation, reliability, hypothesis testing, confidence intervals, analysis, regression, estimation, and applications. Probability, permutations, combinations, binomial theorem, random variables, and distributions may be included. This course is offered upon sufficient enrollment.