

SUBJECTS AND COURSES

COURSE DESCRIPTIONS - MATHEMATICS (MTH)

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. **4 Credit Hours**

MTH 099 Support for Intermediate Algebr

Intermediate Algebra (MTH-100); This learning support course provides co-requisite support in mathematics for students enrolled in MTH 100. The material covered in this course is parallel to and supportive of the material taught in MTH 100. Emphasis is placed on providing students with additional academic and noncognitive support with the goal of success in the students' paired MTH 100 class. This class does not serve as the general core requirement for mathematics. **1 Credit Hour**

MTH 100 Intermediate Algebra

ACT Math minimum score of 18 or SAT Math Section Score minimum score of 500 or (ACT Math minimum score of 17 and MTH-099(Support for Intermediate Algebr) with a grade of or higher) or (High School GPA minimum score of 2.75 and High School Algebra 2 course minimum score of 3) or (High School GPA minimum score of 2.75 and High School Pre-Cal Course minimum score of 3) or (High School GPA minimum score of 2.75 and High School Calculus Course minimum score of 3) or (High School GPA minimum score of 2.75 and High School Algebra 2 course minimum score of 2 and MTH-099(Support for Intermediate Algebr) with a grade of or higher) or Accuplacer Elem Algebra minimum score of 060 or (Accuplacer Elem Algebra minimum score of 050 and MTH-099(Support for Intermediate Algebr) with a grade of or higher) or Accuplacer QAS-Alg/Stats NG minimum score of 253 or (Accuplacer QAS-Alg/Stats NG minimum score of 243 and MTH-099(Support for Intermediate Algebr) with a grade of or higher) or MTH-098(Elementary Algebra) with a grade of D. or higher or MTH-110(Finite Mathematics) with a grade of C or higher or MTH-112(Precalculus Algebra) with a grade of C or higher or GED Math minimum score of 165

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 introducing and graphed. This course does not apply toward the general core requirement for mathematics. **3 Credit Hours**

MTH 109 Support for Finite Mathematics

Finite Mathematics (MTH-110); COREQUISITE: MTH 110 Finite Mathematics This Learning Support course provides co-requisite support in mathematics for students enrolled in MTH 110. The material covered in this course is parallel to and supportive of the material taught in MTH 110. Emphasis is placed on providing students with additional academic and noncognitive support with the goal of success in the students' paired MTH 110 class. This course does not apply toward the general core requirement for mathematics. **1 Credit Hour**

MTH 110 Finite Mathematics

MTH-100(Intermediate Algebra) with a grade of C or higher or MTH-112(Precalculus Algebra) with a grade of C or higher or MTH-113(Precalculus Trigonometry) with a grade of C or higher or MTH-125(Calculus I) with a grade of C or higher or (ACT Math minimum score of 20 and High School Algebra 2 course minimum score of 2) or Accuplacer Elem Algebra minimum score of 80 or Accuplacer QAS-Alg/Stats NG minimum score of 267 or SAT Math Section Score minimum score of 520

This course is intended to give an overview of topics in finite mathematics together with their applications, and is taken primarily by students who are not majoring in science, engineering, commerce or mathematics (i.e., students who are not required to take Calculus). This course will draw on and significantly enhance the student's arithmetic and algebraic skills. The course includes sets, counting, permutations, combinations, basic probability (including Bayes' 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. **3 Credit Hours**

MTH 112 Precalculus 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. **3 Credit Hours**

MTH 113 Precalculus Trigonometry

(ACT Math minimum score of 20 and High School Pre-Cal Course minimum score of 2) or ACT Math minimum score of 24 or (SAT Math Section Score minimum score of 520 and High School Pre-Cal Course minimum score of 2) or Accuplacer College Level Math minimum score of 080 or Compass College Algebra minimum score of 46 or MTH-112(Precalculus Algebra) with a grade of C or higher or MTH-125(Calculus I) with a grade of C or higher

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. **3 Credit Hours**

MTH 115 Precalculus Algebra Trig

MTH-112(Precalculus Algebra) with a grade of C or higher 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. **4 Credit Hours**

MTH 116 Mathematical Application

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. **3 Credit Hours**

MTH 125 Calculus I

(ACT Math minimum score of 20 and High School Pre-Cal Course minimum score of 2) or ACT Math minimum score of 24 or (SAT Math Section Score minimum score of 520 and High School Pre-Cal Course minimum score of 2) or (ACT Math minimum score of 20 and High School Calculus Course minimum score of 2) or (SAT Math Section Score minimum score of 520 and High School Calculus Course minimum score of 2) or MTH-113(Precalculus Trigonometry) with a grade of C or higher or MTH-115(Precalculus Algebra Trig) with a grade of C or higher 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.

4 Credit Hours**MTH 126 Calculus II**

MTH-125(Calculus I) with a grade of C or higher

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. **4 Credit Hours**

MTH 186 Medical Dosage Calculation

PREREQUISITE: MTH 090 or suitable placement score. This course explains mathematical applications to the following dosage calculations: oral dosages, injectable drugs, intravenous fluids, insulin, heparin, pediatric dosages, geriatric dosages, and electrolyte solutions. This course does not apply toward the general core requirement for mathematics. Code C **2 Credit Hours**

MTH 227 Calculus III

MTH-126(Calculus II) with a grade of C or higher

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), quadratic surfaces, multiple integration, and vector calculus (including Green's Theorem, Curl and Divergence, surface integrals, and Stokes' Theorem). **4 Credit Hours**

MTH 231 Math for Elementary Teacher I

MTH-100(Intermediate Algebra) with a grade of C or higher or MTH-110(Finite Mathematics) with a grade of C or higher or MTH-112(Precalculus Algebra) with a grade of C or higher or MTH-113(Precalculus Trigonometry) with a grade of C or higher or MTH-125(Calculus I) with a grade of C or higher or ACT Math minimum score of 18 or Accuplacer Elem Algebra minimum score of 80 or Accuplacer QAS-Alg/Stats NG minimum score of 253 or SAT Math Section Score minimum score of 520 or (High School GPA minimum score of 2.75 or (High School GPA minimum score of 2.75 or (High School GPA minimum score of 2.75 and High School Algebra 2 course minimum score of 3) and High School Pre-Cal Course minimum score of 3)

CODE - B PREREQUISITE: Grade of C or higher in MTH 100 or appropriate placement score This course is designed to develop a deeper understanding of elementary school mathematics content needed for teaching. The course is designed to develop conceptual understanding of number systems and operations by focusing on basic concepts and principles, exploring multiple representations and strategies, and illuminating connections among concepts and procedures. Topics include whole numbers and integers, fractions, ratio, percent, decimals, and arithmetic operations within these systems. **NaN Credit Hours**

MTH 232 Math for Elementary Teacher II

MTH-100(Intermediate Algebra) with a grade of C or higher or MTH-110(Finite Mathematics) with a grade of C or higher or MTH-112(Precalculus Algebra) with a grade of C or higher or MTH-113(Precalculus Trigonometry) with a grade of C or higher or MTH-125(Calculus I) with a grade of C or higher or ACT Math minimum score of 18 or Accuplacer Elem Algebra minimum score of 80 or Accuplacer QAS-Alg/Stats NG minimum score of 253 or SAT Math Section Score minimum score of 520 or (High School GPA minimum score of 2.75 or (High School GPA minimum score of 2.75 or (High School GPA minimum score of 2.75 and High School Algebra 2 course minimum score of 3) and High School Pre-Cal Course minimum score of 3)

CODE - B PREREQUISITE: Grade of C or higher in MTH 100 or appropriate placement score This course is designed to provide mathematical insights into measurement and geometry for students majoring in elementary education. Topics include geometric shapes (two- and three-dimensional), measurement, congruence and similarity, symmetry, and transformations. **NaN Credit Hours**

MTH 237 Linear Algebra

MTH-126(Calculus II) with a grade of C or higher

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. **3 Credit Hours**

MTH 238 Appl Differential Equations I

MTH-227(Calculus III) with a grade of C or higher

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 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. **3 Credit Hours**

MTH 252 Special Topics: Mathematics II

PREREQUISITE: As required by program. This course, which may be repeated for credit so long as the topics differ, permits a student to study with an instructor a topic in mathematics. Emphasis is placed on selected topics in mathematics of special interest to the student and instructor. Topics and coursework are based on Principles and Standards for School Mathematics from the National Council of Teachers of Mathematics. This is a non-transferable course. Students will demonstrate competency on selected topics by performance on projects, daily work, classroom exams, and a comprehensive final. **NaN Credit Hours**

MTH 265 Elementary Statistics

MTH-100(Intermediate Algebra) with a grade of C or higher or MTH-110(Finite Mathematics) with a grade of C or higher or MTH-112(Precalculus Algebra) with a grade of C or higher or MTH-115(Precalculus Algebra Trig) with a grade of C or higher

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. **3 Credit Hours**