MATHEMATICS (MATH)

MATH 011 Introduction to Algebra I 3 cr.
A course designed for those students who do not have the necessary background in basic algebra or are in need of a thorough review of basic algebra. Topics include: Operations with real numbers, solution of linear equations and linear inequalities with mathematical modeling of real life applications, graphing linear equations and inequalities, solving systems of linear equations with mathematical modeling of applications and operations with polynomials. This course cannot be used to satisfy degree requirements. Code 1 course fee.

MATH 012 Introduction to Algebra II 3 cr.
A continuation of MATH 011. Topics include factoring a polynomial, solving quadratic and cubic equations, rational expressions, equations of straight lines, radical expressions and the application of algebraic techniques to problem solving. This course cannot be used to satisfy degree requirements. Code 1 course fee.
Prerequisite(s): MATH 011 with a minimum grade C or placement of MATH 012

MATH 023 Algebra Basics 4 cr.
This course is designed for those students who do not have the necessary background in basic algebra or are in need of a thorough review of basic algebra. Topics include: apply the properties of real numbers, use the order of operations for real numbers, solve linear equations and inequalities, solve application problems involving linear equations, graph linear equations and inequalities with the slope intercept form of an equation, determine equations of lines given specific information, solve systems of linear equations by means of graphing and simple substitution only, solve application problems involving systems of linear equations, perform operations with polynomials, division of algebraic expressions involving exponents should be limited to monomials, simplify algebraic expressions involving exponents. This course cannot be used to satisfy degree requirements. Code 1 course fee.

MATH 151 A Survey of Mathematics 3 cr.
This is a mathematical course for liberal arts students. This course is a study of some of the fundamental concepts in mathematics. Topics include: sets, probability, logic systems of numeration, groups, and mathematical systems. Applications of these topics in various fields of study are included in the course. Code 1 course fee.
Prerequisite(s): Math 012 or Math 023 (minimum grade C) or algebra placement requiring no remediation.

MATH 156 Introduction to Statistics 3 cr.
An introductory level course for non-mathematics majors who need or desire a working knowledge of statistics. This course is oriented towards all fields in which statistics finds applications. Topics include: summarizing data, probability, normal and binomial distributions, hypothesis testing, confidence intervals and correlation. Code 2 course fee.
Prerequisite(s): MATH 012 or MATH 023 (minimum grade C) or algebra placement requiring no remediation., ENGL 095 with a minimum grade of C or reading placement of no remediation.

MATH 158 Algebraic Modeling 4 cr.
This course is designed for students in a variety of fields for which a conceptual undersatnding of college algebra topics is appropriate. Continuous and discrete functions will be studied from graphical, numerical, verbal, and algebraic perspectives with applications to diverse disciplines. Topics will include linear, quadratic, polynomial, exponential, logarithmic absolute value, radical, and rational functions and their application. This course will NOT satisfy the prerequisite for Precalculus courses. Code 1 course fee.
Prerequisite(s): MATH 012 or MATH 023 (minimum grade C) or mathematics placement requiring no remediation.

MATH 161 College Algebra 6 cr.
This course is intended for students pursuing the pre-calculus track who need to improve their elementary algebra skills while also developing a thorough understanding of the more difficult algebraic concepts necessary for MATH 191 or MATH 195. The course topics include: polynomial, exponent, radical, and rational expressions; linear, absolute value, and quadratic equations and inequalities; rational and radical equations; graphing techniques; systems of linear and non-linear equations and inequalities; conic sections; relations and functions. Students cannot earn graduation credits for both MATH 161 and MATH 165. Code 1 course fee.
Prerequisite(s): MATH 012 or MATH 023 (minimum grade C) or mathematics placement requiring no remediation.

MATH 165 College Algebra (Accelerated) 5 cr.
This course will provide a thorough understanding of the more difficult algebraic concepts necessary for MATH 191 and MATH 192. Topics will include the following presented beyond the elementary level: polynomial, exponent, radicatl, and rational expressions; linear, absolute value, and quadratic equations and inequalities; rational and radical equations; graphing techniques; systems of linear and nonlinear equations and inequalities; conic sections, relations and functions. Students cannot earn graduation credits for both MATH 165 and MATH 161. Code 1 course fee.
Prerequisite(s): MATH 012 (minimum grade C) or algebra placement requiring no remediation

MATH 171 Finite Mathematics 3 cr.
This is a mathematics course for liberal arts students. The topics covered include solving linear functions and inequalities, graphing, matrices with applications, and linear programming including the Simplex Method. Computers and/or graphing calculators will be utilized by the students. Code 2 course fee.
Prerequisite(s): MATH 012 or MATH 023 (minimum grade C) or Mathematics placement of no remediation., Take ENGL 095 (minimum grade C) or English placement requiring no remediation.

MATH 181 Introduction to Probability 3 cr.
This is a mathematics course for liberal arts students. Topics presented are selected from set theory, probability, binomial distributions, Markov chains, game theory, graphs and trees. Code 1 course fee.
Prerequisite(s): MATH 012 or MATH 023 (minimum grade C) or Mathematics placement requiring no remediation., Take ENGL 095 (minimum grade C) or English placement requiring no remediation.

MATH 191 Precalculus I 3 cr.
Polynomial, rational, exponential and logarithmic functions are studied from an algebraic, analytic and graphical perspective. Functions, the Fundamental Theorem of Algebra, complex numbers, mathematical modeling and other algebraic concepts are studied. Students cannot earn more than a total of six (6) graduation credits for any combination of MATH 191, MATH 192 and MATH 195. Prerequisite: MATH 165 OR MATH 161 or appropriate placement score. Code 1 course fee.
Prerequisite(s): MATH 165 or MATH 161 or appropriate placement score on the college level math test

MATH 192 Precalculus II 3 cr.
This course is a continuation of MATH 191. It includes the study of trigonometric functions and their inverses, trigonometric identities and equations and complex numbers from an algebraic, analytical, and graphical perspective. Additional topics include determinants sequences and series, analytic geometry and mathematical induction. Code 1 course fee.
Prerequisite(s): MATH 191 or appropriate placement score on the college level math test

MATH 195 Precalculus (Accelerated) 6 cr.
This accelerated course is designed for Mathematics, Science, Computer Science and/or Engineering majors or any student who wishes to be ready for Calculus I in one semester. It will cover equations and inequalities including absolute value, polynomial rational, radical, trigonometric, inverse trigonometric, logarithmic and exponential functions, analytic trigonometry, analytic geometry, polar coordinates and parametric equations. It cannot be combined with MATH 191 and/or MATH 192. Code 1 course fee.
Prerequisite(s): MATH 165 or MATH 161 or appropriate placement score on the college level math test

MATH 201 Precalculus Techniques and Applications 4 cr.
This is an accelerated review of algebraic, geometric, and trigonometric topics for the highly motivated student. Critical thinking skills will be developed through the study of polynomial, rational, trigonometric, logarithmic, and exponential functions and their graphs from algebraic, analytic, and geometric perspectives. Other topics to be studied are system of equations and inequalities, matrices and determinants, sequences and series, and mathematical induction. Technology and mathematical modeling will be utilized throughout the course. Code 1 course fee.
Prerequisite(s): Appropriate placement score on the college level math test

MATH 265 Calculus I 4 cr.
A study of limits and continuity, differentiation formulas for algebraic trigonometric, inverse trigonometric, exponential and logarithmic functions, higher order derivatives, mean value theorem, applications of the derivative including related rates, maximum-minimum; graphing L'Hospital's Rule; antiderivates; the definite integral; integration using substitution; applications of the integral to evaluation of area; alternate definition of the natural logarithmic function. Code 1 course fee.
Prerequisite(s): MATH 192, MATH 195 or MATH 201 or appropriate placement score on the college level math test

MATH 266 Calculus II 4 cr.
A study of applications of the integral including area, volume, arc length, surface area, work; techniques of integration; improper integrals; infinite sequences and series; Taylor and Maclaurin series with applications; parametric equations; polar coordinates. Code 1 course fee.
Prerequisite(s): MATH 265

MATH 267 Calculus III 4 cr.
A study of three-dimensional analytic geometry, vectors and vector functions; derivatives with applications; multiple integrals with applications; vector calculus including Greens Theorem and Stokes Theorem. Code 1 course fee.
Prerequisite(s): MATH 266

MATH 270 Discrete Mathematics 3 cr.
This course is recommended for computer science and Mathematics majors. The topics include: sets, logic, mathematical induction, recursion, combinations, probability, graph theory and Boolean algebra. Code 1 course fee.
Prerequisite(s): MATH 265, MATH 266 or permission of instructor

Corequisite(s): MATH 266

MATH 275 Linear Algebra 3 cr.
This course covers topics in linear algebra, including systems of linear equations, Gaussian Elimination, matrices and determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and computer applications. Code 1 course fee.
Prerequisite(s): MATH 266

MATH 280 Differential Equations 3 cr.
Topics include modeling and solving first-order differential equations, modeling and solving higher-order differential equations, both linear and non-linear, solution of differential equations by power series and Laplace transforms, matrices and determinants. Technology will be utilized. Code 1 course fee.
Prerequisite(s): MATH 267

MATH 281 Differential Equations 4 cr.
This course includes the following topics: modeling and solving first-order differential equations and higher-order differential equations, both linear and non-linear, solution of differential equations by power series and Laplace transforms, matrices and determinants, Fourier series, and an introduction to partial differential equations. Code 1 course fee.
Prerequisite(s): MATH 267