

# MATHEMATICS (MATH)

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**MATH 103. College Algebra**

Credits: 4

Prerequisite: Qualifying placement score or completion of ASC 93 with a grade of a C or better.

Typically Offered: FASPSU

Solutions of linear and quadratic equations and inequalities, graphing functions and relations, polynomial and rational functions, systems of equations and inequalities, exponential and logarithmic functions.

**MATH 104. Finite Mathematics**

Credits: 3

Prerequisite: Qualifying placement score or completion of ASC 93 with a grade of C or better.

Typically Offered: FALLSPR

This course addresses areas that have application in the economic, behavioral, social, and life sciences. Topics include linear modeling, systems of linear equations and inequalities; matrix operations; linear programming; mathematics of finance; combinatorics, probability, and expected value; and descriptive statistics. Appropriate use of mathematical technology will be integrated throughout the course.

**MATH 105. Trigonometry**

Credits: 2

Prerequisite: Math 103.

Typically Offered: FALLSPR

Functions of the general angle, graphs of the trigonometric functions, inverse functions, identities, trigonometric equations, and applications.

**MATH 107. Pre-Calculus**

Credits: 4

Prerequisite: Qualifying placement score or completion of ASC 93 with a grade of C or better.

Typically Offered: FALLSPR

Selected topics from algebra and trigonometry with special emphasis on how they apply to the study of calculus. Topics covered include solutions of equations and inequalities, exponential, logarithmic, trigonometric and circular functions and their graphs.

**MATH 110. Math in Society**

Credits: 3

Prerequisite: Qualifying placement score or completion of ASC 93 with a grade of a C or better.

Typically Offered: FASPSU

This course covers a broad range of mathematics that a person would encounter in their daily life. Topics include statistical interpretation, data visualization, probability, growth models, finance, politics and voting, logic and sets, and the intersection of mathematics and the arts. Throughout, appropriate use of mathematical technology will be emphasized.

**MATH 137. Applied Algebra**

Credits: 3

Prerequisite: Qualifying placement score or completion of ASC 91 with a grade of C or better.

Typically Offered: FASPSU

An intermediate algebra course for students enrolled in technology programs. Topics include properties of real numbers, algebraic expressions, factoring, formula manipulation, graphing, linear equations, quadratic equations, solving systems of equations, simultaneous equations, exponents, radicals and logarithmic equations. NOTE: This course satisfies general education requirements for the AAS, diploma and certificate, but not for the AA and AS degrees. Refer to the online catalog for updated placement information.

**MATH 146. Applied Calculus I**

Credits: 3

Prerequisite: MATH 103 or MATH 104.

Typically Offered: FALLSPR

Limits, continuity, differentiation, integration and differential equations are included with many examples drawn from business, economics, management, life and social sciences.

**MATH 147. Applied Calculus II**

Credits: 3

Prerequisite: MATH 146.

Typically Offered: FALLSPR

This course will emphasize the applications of calculus. The concepts and content include definite integrals, introductory differential equations, infinite sequences and series, and probability and applications.

**MATH 165. Calculus I**

Credits: 4

Prerequisite: Math 107; or MATH 103 and MATH 105; or qualifying placement score.

Typically Offered: FASPSU

Review of analytic geometry, limits and continuity, derivatives of functions of one variable with applications, L'Hopital's rule, antidifferentiation, the Fundamental Theorem of Calculus, numerical integration, trigonometric, exponential and logarithmic functions.

**MATH 166. Calculus II**

Credits: 4

Prerequisite: MATH 165.

Typically Offered: FASPSU

Applications of the definite integral, areas, volumes of solids of revolution, surface areas, centroids, techniques of integration, parametric equations, polar equations, improper integrals, and tests of convergence for sequences and series.

**MATH 208. Discrete Mathematics**

Credits: 3

Prerequisite: MATH 103 or qualifying placement score.

Typically Offered: SPRING

Study of sets, relations, functions, graph theory, Boolean algebra, combinatorics, logic and induction with particular emphasis on their application to computer science.

**MATH 210. Elementary Statistics**

Credits: 3

Prerequisite: Qualifying placement score or completion of ASC 93 with a grade of C or better.

Typically Offered: FASPSU

An introduction to statistical methods of gathering, presenting and analyzing data. Topics include probability and probability distributions, confidence intervals, hypothesis testing, and linear regression and correlation.

**MATH 220. Probability and Statistics**

Credits: 3

Prerequisite: MATH 166 or concurrent enrollment in MATH 166.

Typically Offered: ONDEMAND

Study of basic probability theory including probability functions for both discrete and continuous data. Sampling distributions, point and interval estimations, hypothesis testing and regression and correlation theory are also explored with emphasis placed on applications of each method.

**MATH 227. Applied Linear Algebra**

Credits: 3

Prerequisite: MATH 166 or concurrent enrollment in MATH 166.

Typically Offered: FALL

Vectors and matrices, systems of linear equations and inequalities, mappings, determinants, linear programming and the simplex method.

**MATH 265. Calculus III**

Credits: 4

Prerequisite: MATH 166.

Typically Offered: FALLSPR

Vectors and the geometry of space, functions of several variables with applications, lines and planes in space, gradient vectors and directional derivatives, multiple integration with applications, divergence and curl, line and surface integrals.

**MATH 266. Introduction to Differential Equations**

Credits: 3

Prerequisite: MATH 265.

Typically Offered: SPRING

Study of first and second order differential equations, linear differential equations, Laplace transforms, systems of equations, approximate solutions by numerical methods, eigenvalues and eigenvectors. Special emphasis is given to applications in a variety of fields.

**MATH 277. Mathematics for Elementary Teachers I**

Credits: 4

Typically Offered: FALL

Future elementary teachers will gain deeper understanding of how and why math operations work. Operations that align with today's curriculum standards will be covered: addition, subtraction, multiplication, and division, and number basics such as rounding, estimation, primes, number systems, divisibility, number theory, problem solving, and typical mathematical errors children commonly make. Students will be introduced to math teaching methods used in elementary classrooms and they will practice explaining math topics to their peers.

**MATH 278. Math for Elementary Teachers II**

Credits: 3

Prerequisite: MATH 277.

Typically Offered: SPRING

A mathematics content course for prospective elementary school teachers that integrates the understanding of content and development of processes. Topics include real numbers, proportional reasoning, elementary algebra, geometry and probability. Appropriate use of calculators, computers and manipulatives are used in the course.