MATHEMATICS (MATH)

MATH 0000A. Elementary Algebra
Units: 4-5
Prerequisite: Completion of MATH 582 with grade of "C" or better or placement by matriculation assessment process
Hours: 72 lecture (4 units); 90 lecture (5 units)
Real numbers and their properties, first degree equations and inequalities, graphs of linear equations in two variables, systems of linear equations in two variables, properties of integer exponents, polynomial operations, basic factoring, rational expressions, radical expressions, quadratic equations, and applied problems and problem solving. (not transferable)

MATH 0000B. Plane Geometry
Units: 4
Prerequisite: Completion of MATH A with grade of "C" or better, or placement by matriculation assessment process
Hours: 72 lecture
Study of points, lines, angles, polygons, triangles, similarity, congruence, geometric proofs, area, volume, perimeter, the circle, right triangle trigonometry. (not transferable)

MATH 0000D. Intermediate Algebra
Units: 4-5
Prerequisite: Completion of MATH A with grade of "C" or better or placement by matriculation assessment process
Hours: 72 lecture (4 units); 90 lecture (5 units)
Exponents, radicals, complex numbers, factoring, linear and quadratic equations and inequalities; linear, quadratic, exponential and logarithmic functions; graphing, and systems of equations. (not transferable)

MATH 0000E. Practical Mathematics
Units: 6
Prerequisite: Completion of MATH 582 with grade of "C" or better or placement by matriculation assessment process
Hours: 108 lecture
Practical Mathematics is a one semester course for non-math, non-science majors covering the topics of numeracy, proportional reasoning, algebraic reasoning, trigonometric reasoning, data analysis and critical thinking through real world applications. Students develop the skills needed to apply mathematical and technological skills and procedures to analyze and interpret mathematical data. Algebraic, geometric and trigonometric topics covered include: real numbers and their properties; proportions; measurement of lengths, areas and volumes; first degree equations and inequalities; functional analysis; graphs of linear, quadratic, and exponential equations; systems of equations in two variables; quadratic, exponential, and logarithmic equations; and basic right triangle trigonometry. Not intended for students on the calculus track. (not transferable)

MATH 0010. Problem Solving
Units: 4
Prerequisite: Two years of high school algebra or MATH D with grade of "C" or better, or placement by matriculation assessment process
Hours: 72 lecture
Individual and small-group problem solving geared toward real life situations and nontraditional problems. Problem solving strategies include: draw a diagram, eliminate possibilities, make a systematic list, look for a pattern, guess and check, solve an easier related problem, subproblems, use manipulatives, work backward, act it out, unit analysis, use algebra, finite differences, and many others. Divergent thinking and technical communication skills of writing and oral presentation are enhanced. Designed to teach students to think more effectively and vastly increase their problem solving ability. (CSU)

MATH 0012. College Algebra
Units: 4
Prerequisite: Completion of MATH D with grade of "C" or better, or placement by matriculation assessment process
Hours: 72 lecture
Study of algebra topics beyond MATH D; including functions, graphs, logarithms, systems of equations, matrices, analytic geometry sequences, mathematical induction, and introduction to counting techniques. (CSU, UC-with unit limitation)

MATH 0013. Elementary Statistics
Units: 4
Prerequisite: Completion of MATH D or E with grade of "C" or better; or placement by matriculation assessment process; or equivalent
Hours: 72 lecture
Introduction to the basic concepts of statistics. Emphasis on statistical reasoning and application of statistical methods. Areas included: graphical and numerical methods of descriptive statistics; basic elements of probability and sampling; binomial, normal, and Student's t distributions; confidence intervals and hypothesis testing for one and two population means and proportions; chi-square tests for goodness-of-fit and independence; linear regression and correlation; and one-way analysis of variance (ANOVA). (C-ID MATH 110) (CSU, UC-with unit limitation)

MATH 0015. Discrete Mathematics
Units: 4
Prerequisite: Completion of MATH 30 with grade of "C" or better
Hours: 72 lecture
Study of set theory, relations and functions, logic, combinatorics and probability, algorithms, computability, matrix algebra, graph theory, recurrence relations, number theory including modular arithmetic. Various forms of mathematical proof are developed: proof by induction, proof by contradiction. (CSU, UC)

MATH 0016A. Calculus for Social and Life Sciences
Units: 4
Prerequisite: Completion of MATH 12 with grade of "C" or better, or placement by matriculation assessment process
Advisory: Not recommended for students with grade of "C" or better in MATH 30
Hours: 72 lecture
Review of functions, limits, differentiation and integration of algebraic functions, calculus for exponential and logarithmic functions, applications of calculus in social and life sciences. This course is not intended for students majoring in mathematics, engineering, physics, or chemistry. (CSU, UC-with unit limitation)

MATH 0016B. Calculus for Social and Life Sciences
Units: 4
Prerequisite: Completion of MATH 16A or 30 with grade of "C" or better
Advisory: Completion of MATH 8 with grade of "C" or better
Hours: 72 lecture
Differentiation and integration of trigonometric functions, functions of several variables, partial derivatives, double integrals, introduction to differential equations, sequences and series, applications of calculus in the social and life sciences. (CSU, UC-with unit limitation)

MATH 0017. Concepts of Mathematics
Units: 3
Prerequisite: Three years of high school mathematics which includes two years of algebra and one year of geometry; or MATH D and B with grades of "C" or better; or placement by matriculation assessment process
Hours: 54 lecture
Exploration of mathematical patterns and relations, formulation of conjectures based on the explorations, proving (or disproving) the conjectures. Includes different problem solving techniques, number theory, probability, statistics, sequences and series, and geometry. Intended for students interested in elementary education. (CSU, UC-with unit limitation)

MATH 0018. The Nature of Mathematics
Units: 3
Prerequisite: Two years of high school algebra or MATH D with grade of "C" or better, or placement by matriculation assessment process
Hours: 54 lecture
Introduces students to the art and application of mathematics in the world around them. Topics include mathematical modeling, voting and apportionment, and mathematical reasoning with applications chosen from a variety of disciplines. Not recommended for students entering elementary school teaching or business. (CSU, UC-with unit limitation)

MATH 0019. Mathematical Concepts for Elementary School Teachers
Units: 3
Prerequisite: Completion of two years of high school algebra or MATH 0000D with grade(s) of "C" or better, or placement by matriculation assessment process
Hours: 54 lecture
This course focuses on the development of quantitative reasoning skills through in-depth, integrated explorations of topics in mathematics, including the real number system and its subsystems. The emphasis is on comprehension and analysis of mathematical concepts and applications of logical systems. (C-ID MATH 120) (CSU, UC)

MATH 0024. Modern Business Mathematics
Units: 3
Prerequisite: Two years of high school algebra or MATH D with grade(s) of "C" or better, or placement by matriculation assessment process
Hours: 54 lecture
Applications of mathematics in economics and business contexts. Topics include tables and graphs, functions, finance (interest and exponential models), rates of change including applications and optimization, and linear programming. (CSU)

MATH 0027. Trigonometry
Units: 4
Formerly known as MATH 0008
Prerequisite: Completion of MATH D with grade of "C" or better, or placement by matriculation assessment process
Hours: 72 lecture
Fundamentals of trigonometry. Topics include review of algebraic functions, definitions of trigonometric and circular functions, graphs, identities and applications. Other material includes solving trigonometric equations, solving triangles using the Laws of Sines and Cosines, vectors, polar coordinates and graphs, polar representations of complex numbers and conic sections. (CSU)

MATH 0028. Independent Study
Units: 1-3
Designed for students interested in furthering their knowledge at an independent study level in an area where no specific curriculum offering is currently available. Independent study might include, but is not limited to, research papers, special subject area projects, and research projects. See Independent Study page in catalog. (CSU, UC-with unit limitation)

MATH 0029. Pre-Calculus Mathematics
Units: 4
Prerequisite: Completion of MATH 8 with grade of "C" or better, or placement by matriculation assessment process
Hours: 72 lecture
Preparation for calculus. Study of polynomials, rational functions, exponential and logarithmic functions, trigonometric functions, systems of linear equations, matrices, determinants, rectangular and polar coordinates, conic sections, complex number systems, mathematical induction, binomial theorem, and sequences. Recommended for students who plan to take MATH 30. (CSU, UC-with unit limitation)

MATH 0030. Analytical Geometry and Calculus I
Units: 4
Prerequisite: Completion of MATH 8 and either MATH 12 or 29 with grades of "C" or better, or placement by matriculation assessment process
Hours: 72 lecture
Introduction to differential and integral calculus. Content includes limits, continuity, differentiation and integration of algebraic, trigonometric, exponential, logarithmic, hyperbolic and other transcendental functions; as well as application problems. (C-ID MATH 210) (combined with MATH 31, C-ID MATH 900S) (CSU, UC-with unit limitation)

MATH 0031. Analytical Geometry and Calculus II
Units: 4
Prerequisite: Completion of MATH 30 with grade of "C" or better
Hours: 72 lecture
Continuation of MATH 30. Content includes techniques of integration, improper integrals, applications of integration, infinite series, parametric equations and polar coordinates. (C-ID MATH 220) (combined with MATH 30, C-ID MATH 900S) (CSU, UC-with unit limitation)

MATH 0032. Analytical Geometry and Calculus III
Units: 4
Prerequisite: Completion of MATH 31 with grade of "C" or better
Hours: 72 lecture
Continuation of MATH 31. Vectors and analytic geometry in the plane and space; functions of several variables; partial differentiation, multiple integrals, and application problems; vector functions and their derivatives; motion in space; and surface and line integrals, Stokes' and Green's Theorems, and the Divergence Theorem. (C-ID MATH 230) (CSU, UC)

MATH 0033. Differential Equations and Linear Algebra
Units: 6
Prerequisite: Completion of MATH 31 with grade of "C" or better
Advisory: Completion of MATH 32 with grade of "C" or better strongly recommended
Hours: 108 lecture
First and second order ordinary differential equations, linear differential equations, numerical methods and series solutions, Laplace transforms, modeling and stability theory, systems of linear differential equations, matrices, determinants, vector spaces, linear transformations, orthogonality, eigenvalues and eigenvectors. (C-ID MATH 910S) (CSU, UC)

MATH 0042. Business Calculus
Units: 4
Prerequisite: Completion of MATH D with grade of "C" or better, or placement by matriculation assessment process
Advisory: Completion of MATH 12 strongly recommended, especially for students who have not recently taken MATH D
Hours: 72 lecture
Introduction to differential and integral calculus, with particular emphasis on applications in the fields of business, economics, and social sciences. Includes: concepts of a function, limits, derivatives, integrals of polynomial, exponential and logarithmic functions, optimization problems, and calculus of functions of more than one variable. Not recommended for students with credit for MATH 30. (C-ID MATH 140) (CSU, UC-with unit limitation)

MATH 0581. Arithmetic Review
Units: 4
Prerequisite: Placement by matriculation assessment process
Hours: 108 (54 lecture; 54 laboratory which may be scheduled TBA)
Basic review of fundamental arithmetic operations with whole numbers, decimals, fractions, ratio and proportion, and percentages. Not open to students who have completed MATH 581S. (not degree applicable)

MATH 0581S. Summer Bridge Arithmetic Review
Units: 3
Prerequisite: Placement by matriculation assessment process
Hours: 54 lecture
Summer Bridge Program with accelerated curriculum. Basic review of fundamental arithmetic operations with whole numbers, decimals, fractions, ratio and proportion, and percentages. Not open to students who have completed MATH 581. (not degree applicable)

MATH 0582. Pre-Algebra
Units: 4
Prerequisite: Completion of MATH 581 or 581S with grade of "C" or better or placement by matriculation assessment process
Hours: 108 (54 lecture; 54 laboratory which may be scheduled TBA)
Integrates and utilizes algebraic concepts and skills, such as integers, algebraic equations, polynomials, radicals, factoring and graphing, as well as reviews whole numbers, decimals, fractions, ratio and proportions, exponential notation, percentages, basic geometry and problem solving. (not degree applicable)

MATH 0584. Math Success-Overcoming Math Anxiety
Unit: 1
Hours: 18 lecture
Designed to assist students to recognize common fears and misconceptions of mathematics and develop personal strategies to overcome math and test anxiety. Specific study skills and strategies are discussed. Individual math learning styles are analyzed. (not degree applicable)

MATH 0585. Foundations of Mathematics
Units: 6
Prerequisite: Placement by matriculation assessment process
Hours: 108 lecture
Covers the topics of numeracy, algebraic reasoning and computation, proportional reasoning, critical thinking and problem solving through application, and math confidence. Explores student attitudes towards mathematics and develops student-specific study skills and learning strategies. Topics covered include: history of numbers, the real number system, mathematical operations, order of operations, linear equations, graphing, proportions, and applications. (not degree applicable)