

MATHEMATICS (MATH)

MATH G030 4 Units (72 lecture hours; 18 lab hours)

Intermediate Algebra

Prerequisite(s): MATH G010 or achieve qualifying score on Math Placement.

Grading Mode: Standard Letter
Not Transferable.

This course is equivalent to the second year of high school algebra. It is taught using large group lectures in conjunction with computer assignments and laboratory work. Topics include absolute value, rational exponents, radicals, linear equations and inequalities, quadratic equations and inequalities, functional notation, linear and quadratic functions, conic sections, logarithms, exponential and logarithmic functions, linear systems in two and three variables, sequences, and series. A scientific calculator will be required. Software used requires access to a computer. Graded.

MATH G040 5 Units (90 lecture hours; 18 lab hours)

Accelerated Elementary and Intermediate Algebra

Grading Mode: Standard Letter
Not Transferable.

This course is equivalent to a first and second year high school algebra course accelerated into one semester. Taught in a combined large lecture and laboratory format. Software used requires access to a computer. It is taught using group lectures in conjunction with computer assignments and laboratory work. Topics include: properties of real numbers; simplifying polynomial, rational, and radical expressions; solving linear, quadratic, rational, and radical equations in one variable; graphing and solving systems of linear equations in two variables, absolute value, rational exponents, quadratic equations and inequalities, linear and quadratic functions, conic sections, exponential and logarithmic functions, sequences, and series. A scientific calculator will be required. Graded.

MATH G080 5 Units (90 lecture hours; 18 lab hours)

Pre-Statistics

Prerequisite(s): MATH G010 or appropriate Math Placement.

Grading Mode: Standard Letter
Not Transferable.

This course is designed for students whose education plan calls for MATH G160: Introduction to Statistics. It may not be suitable for students on a STEM degree pathway. The course covers requisite topics from Intermediate Algebra including linear equations and inequalities, linear regression analysis, exponential functions, exponential equations, descriptive statistics, probability, sampling distributions including the Normal distribution, and the use of graphing calculators and/or computer software. Graded.

MATH G100

3 Units (54 lecture hours)

Liberal Arts Mathematics

Prerequisite(s): Course taught at the level of intermediate algebra or appropriate math placement.

Grading Mode: Standard Letter
Transfer Credit: CSU; UC.

Using and expanding upon a student's current algebraic skills set, this course offers the liberal arts student an applications-oriented, problem-solving exploration into a variety of mathematical fields including geometry, statistics, and business mathematics. This course is designed not only to meet college general education requirements but to help generate a positive attitude toward and an interest in mathematics. Graded.

MATH G103 3 Units (54 lecture hours; 18 lab hours)

Statistics For Elementary Teachers

Prerequisite(s): Course taught at the level of intermediate algebra or appropriate math placement.

Grading Mode: Standard Letter
Transfer Credit: CSU; UC: Credit Limitation: BIOL G260, ECON G160, MATH G103, MATH G160 and PSYC G140 combined: maximum credit, 1 course.

Formerly: Elem. Teachers Math: 3-Probability and Statistics. This course is designed for prospective teachers. This course is an activity-based exploration of statistics aligned with the California State Mathematics Standards. Topics include data representation and analysis, randomization and sampling, measures of central tendency and variability, hypothesizing and statistical inference. Graded.

MATH G104 3 Units (54 lecture hours)

Mathematics For Elementary Teachers

Prerequisite(s): Course taught at the level of intermediate algebra or appropriate math placement.

Grading Mode: Standard Letter
Transfer Credit: CSU; UC.

Formerly: Mathematics for Elementary Teachers 1. This course is designed for the prospective elementary school teacher. Topics include problem-solving, structure and arithmetic of the real numbers and other numerical systems, set theory, and manipulatives. This course is designed to develop and reinforce conceptual understanding of the national and state curriculum standards for elementary school mathematics, including the common core. Graded.

MATH G115**4 Units (72 lecture hours)****College Algebra****Prerequisite(s):** Course taught at the level of intermediate algebra or appropriate math placement.**Grading Mode:** Standard Letter**Transfer Credit:** CSU; UC: Credit Limitation: MATH G115 and MATH G170 combined: maximum credit, 5 semester/7.5 quarter units.

This course is designed for students planning to enroll in MATH G140 or MATH G180. Topics include matrices and determinants, theory of equations and systems, graphing equations and functions, logarithmic and exponential functions and their graphs, polynomial and rational functions, conics sections, sequences and series, counting, and probability. A scientific calculator is recommended. Graded.

MATH G115S**6 Units (108 lecture hours)****College Algebra with Support****Prerequisite(s):** Course taught at the level of intermediate algebra or appropriate math placement.**Grading Mode:** Standard Letter**Transfer Credit:** CSU; UC.

This course is designed for students planning to enroll in MATH G140 or MATH G180. Topics include matrices and determinants, theory of equations and systems, graphing equations and functions, logarithmic and exponential functions and their graphs, polynomial and rational functions, conics sections, sequences and series, counting, and probability. In addition to this college algebra content, the course offers additional supplement instruction in basic algebra skills and concepts needed for college algebra. A scientific calculator is recommended. Graded.

MATH G120**3 Units (54 lecture hours)****Trigonometry****Prerequisite(s):** Course taught at the level of intermediate algebra or appropriate math placement.**Grading Mode:** Standard Letter**Transfer Credit:** CSU.

This course is a study of the circular and trigonometric functions. The topics include inverses, graphs, solutions of triangles, conditional equations, identities, vectors, complex numbers, polar coordinates, parametric equations, and applications of these concepts. A scientific calculator is recommended. Graded.

MATH G140**4 Units (72 lecture hours)****Business Calculus****Prerequisite(s):** Course taught at the level of intermediate algebra or appropriate math placement.**Grading Mode:** Standard Letter**Transfer Credit:** CSU; UC: Credit Limitation: MATH G140 and MATH G180 combined: maximum credit, 1 course.

This course is designed for students of business, management, and social science who need only one semester of calculus covering a variety of topics spanned over three semesters of calculus. Topics include functions, limits and continuity, differentiation, integration, graphing, and the calculus of two variables and applications of the derivative and integral. This course does not prepare a student to enter MATH G180 or MATH G185. Graded. **C-ID:** MATH 140.

MATH G140S**6 Units (108 lecture hours)****Business Calculus with Support****Prerequisite(s):** Course taught at the level of intermediate algebra or appropriate math placement.**Grading Mode:** Standard Letter**Transfer Credit:** CSU.

This course is designed for students of business, management, and social science who need only one semester of calculus covering a variety of topics spanned over three semesters of calculus. Topics include functions, limits and continuity, differentiation, integration, graphing, and the calculus of two variables and applications of the derivative and integral. In addition, supplemental instruction will be provided in basic algebraic and trigonometric skills and concepts needed for success in Business Calculus. This course does not prepare a student to enter MATH G180 or MATH G185. Graded or Pass/No Pass option.

MATH G160**4 Units (72 lecture hours)****Introduction To Statistics****Prerequisite(s):** Course taught at the level of intermediate algebra or appropriate math placement.**Grading Mode:** Standard Letter**Transfer Credit:** CSU; UC: Credit Limitation: BIOL G260, ECON G160, MATH G103, MATH G160 and PSYC G140 combined: maximum credit, 1 course

This course includes concepts and procedures of descriptive and inferential statistics; collecting, classifying, tabulating, graphing univariate and bivariate data; measures of central tendencies, variation, percentiles, probability, binomial, normal, T, Chi-square, and F distributions; making inferences, decisions and predictions. This course develops statistical thinking through the study of and applications to data sets in the social and behavioral sciences, business, and other disciplines. The use of a graphing calculator and/or statistical analysis computer programs is integrated into the course. Graded. **C-ID:** MATH 110, SOCI 125.

MATH G160S**6 Units (108 lecture hours)****Introduction to Statistics with Support**

Prerequisite(s): Course taught at the level of intermediate algebra or appropriate math placement.

Grading Mode: Standard Letter

Transfer Credit: CSU; UC.

This course includes concepts and procedures of descriptive and inferential statistics; collecting, classifying, tabulating, graphing univariate and bivariate data; measures of central tendencies, variation, percentiles, probability, binomial, normal, T, Chi-square, and F distributions; making inferences, decisions and predictions. This course develops statistical thinking through the study of and applications to data sets in the social and behavioral sciences, business, and other disciplines. In addition to this statistics content, the course provides supplemental instruction in basic algebra skills and concepts needed for success in statistics computations and applications. The use of a graphing calculator and/or statistical analysis computer programs is integrated into the course. Graded.

MATH G170**4 Units (72 lecture hours)****Precalculus**

Prerequisite(s): MATH G120 or appropriate Math Placement.

Grading Mode: Standard Letter

Transfer Credit: CSU; UC: Credit Limitation: MATH G115 and MATH G170 combined: maximum credit, 5 semester/7.

This course will cover topics required for studying calculus. Particular emphasis will be placed on the analysis of polynomial, rational, exponential, logarithmic, trigonometric and inverse functions. Other topics include analytic geometry, linear systems, elementary theory of equations, polar coordinates, and complex numbers. This course is essential for those students planning to study MATH G180 (Calculus 1). Graded. 5 quarter units.

MATH G180**4 Units (72 lecture hours)****Calculus 1**

Prerequisite(s): MATH G170 or MATH G115 and MATH G120 or appropriate Math Placement.

Grading Mode: Standard Letter

Transfer Credit: CSU; UC: Credit Limitation: MATH G140 and MATH G180 combined: maximum credit, 1 course.

This course is the first course in a three-course sequence designed for mathematics, science, and engineering majors. Topics include differential and integral calculus of a single variable: functions; limits and continuity; techniques and applications of differentiation and integration; Fundamental Theorem of Calculus. (The student should plan to complete the first three semesters of calculus at Golden West College to maintain continuity.) Graded. **C-ID:** MATH 210, MATH 211, MATH 900S.

MATH G185**4 Units (72 lecture hours)****Calculus 2**

Prerequisite(s): MATH G180.

Grading Mode: Standard Letter

Transfer Credit: CSU; UC.

This course is the second course in a three-course sequence designed for mathematics, science, and engineering majors. The topics covered in this course include methods of integration, applications of the definite integral, polar and parametric functions, improper integrals, convergence and divergence of sequences and series including power series, and conic sections. (The student should plan to complete the first three semesters of calculus at Golden West College to maintain continuity). Graded. **C-ID:** MATH 221, MATH 900S.

MATH G235**4 Units (72 lecture hours)****Applied Linear Algebra**

Prerequisite(s): MATH G185.

Grading Mode: Standard Letter

Transfer Credit: CSU; UC.

Formerly: MATH G290. This course develops the techniques and theory needed to solve and classify systems of linear equations. Solution techniques include row operations, Gaussian elimination, and matrix algebra. Investigates the properties of vectors in two and three dimensions, leading to the notion of an abstract vector space. Vector space and matrix theory are presented including topics such as inner products, norms, orthogonality, eigenvalues, eigenspaces, and linear transformations. Selected applications of linear algebra are included. Graded. **C-ID:** MATH 250.

MATH G280**4 Units (72 lecture hours)****Calculus 3**

Prerequisite(s): MATH G185.

Grading Mode: Standard Letter

Transfer Credit: CSU; UC.

This course is the third in a three-course sequence, designed for mathematics, science, and engineering majors. Topics include vectors in three-dimensional space, curves, and surfaces, functions of several variables, partial differentiation, the gradient, the curl, the divergence, multiple integration, Green's Theorem, Gauss' (Divergence) Theorem, and Stokes' Theorem. The student should plan to complete the first three semesters of calculus at Golden West College to maintain continuity. Graded. **C-ID:** MATH 230.

MATH G285 **5 Units (90 lecture hours)**

Introduction to Linear Algebra and Differential Equations

Prerequisite(s): MATH G185.

Grading Mode: Standard Letter

Transfer Credit: CSU; UC.

Formerly: Ordinary Differential Equations. This course is designed to introduce students to the fields of Linear Algebra and Differential Equations. Topics include First order ordinary differential equations, including separable, linear, homogeneous of degree zero, Bernoulli and exact with applications and numerical methods. Solutions to higher order differential equations using undetermined coefficients, variation of parameters, and power series, with applications. Solutions to linear and non-linear systems of differential equations, including numerical solutions. Matrix algebra, solutions of linear systems of equations, and determinants. Vector spaces, linear independence, basis and dimension, subspace and inner product space, including the Gram-Schmidt procedure. Linear transformations, kernel and range, eigenvalues, eigenvectors, diagonalization and symmetric matrices. Graded. **C-ID:** MATH 910S, MATH 240.