MATHEMATICS (MATH)

MATH-83 Essential Mathematics for Statistics **2 Units**
18 hours lecture; 36 hours activity; 54 hours total
Corequisites: *Concurrent enrollment in MATH-232.*
Math 83 is open only to students who concurrently enroll in Math 232, Statistics. Students will review and apply concepts from arithmetic, algebra and geometry to the understanding of college level statistics. Concepts will be covered using a just-in-time approach for understanding of the corresponding statistics concepts as they are presented in Math 232. This course is not appropriate for math, science, computer science, business, or engineering majors.
Not transferable

MATH-85 Elementary Algebra **4 Units**
54 hours lecture; 36 hours activity; 90 hours total
This course is a review of basic mathematics, operations on real numbers, and algebraic expressions. It includes traditional arithmetic, pre-algebra and an introduction to algebra for students needing to develop or improve basic computational and quantitative reasoning skills. This course is recommended for students who wish to study business, science, technology, engineering or mathematics and need to learn foundational topics.
Not transferable

MATH-86 Support for College Algebra **2.5 Units**
36 hours lecture; 18 hours activity; 54 hours total
Prerequisite: *Completion of MATH-85 with a minimum grade of C or appropriate placement.*
Corequisites: *Concurrent enrollment in MATH-106.*
Recommended Preparation: *Math-86 is open entry, and will provide students with the algebra needed to succeed in Math-106, College Algebra. Students who would like more time to build their algebra foundation than this concurrent course will provide, should consider taking Math-95. In addition, Math-86, requires that students have a fundamental understanding of topics from beginning Algebra such as operations on fractions and solving equations. Students without this understanding should consider taking Math-85.*
Math 86, Support for College Algebra, is open only to students concurrently enrolled in Math 106, College Algebra. Concepts will be covered using a just-in-time approach for understanding of the corresponding concepts as they are presented in Math 106. This course is designed to offer support for students who lack the strong algebra background to succeed in Math 106.
Not transferable

MATH-91 Applied Math for Health Professionals **3 Units**
54 hours lecture; 54 hours total
This class is for students in the health professions who need review of math concepts such as ratios, fractions and measurements of the metric system. The topics covered specifically apply to health occupations.
Not transferable

MATH-93 Foundational Mathematics for Statistics **3 Units**
36 hours lecture; 36 hours activity; 72 hours total
Recommended Preparation: *It is expected that students have a fundamental understanding of signed numbers, including decimals and fractions.*
Math 93 provides students with the algebraic skills necessary for success in Statistics (Math 232). Students will learn to use core concepts from arithmetic, prealgebra, elementary and intermediate algebra, with emphasis on solving and graphing linear equations; modeling with linear functions; solving contextualized problems; and dimensional analysis. This course is not intended for math, science, computer science, business, or engineering majors.
Not transferable

MATH-95 Foundations of Algebra for Math Intensive Fields **5 Units**
72 hours lecture; 36 hours activity; 108 hours total
Prerequisite: *Completion of MATH-85 with a minimum grade of C or appropriate placement.*
Recommended Preparation: *Math-95 is open entry, but requires that students have a fundamental knowledge of mathematics topics such as operations on fractions, solving basic equations and graphing. Students who need to develop those skills should consider taking Math-85.*
This course consists of elements of beginning and intermediate algebra as appropriate for long-term engagement in math-intensive fields. Topics include polynomial, rational, radical, exponential, and logarithmic expressions, equations, functions, and graphs; polynomial, rational, and radical inequalities; systems of equations; and algebra of functions. This course is recommended for students who wish to study business, science, technology, engineering or mathematics.
Not transferable

MATH-106 College Algebra **4 Units**
54 hours lecture; 36 hours activity; 90 hours total
Prerequisite: *Completion of MATH-95 with a minimum grade of C or appropriate placement.*
This course provides a strong algebraic foundation for the study of Calculus. From numerical, graphing, and analytical views, the course studies functions, including: polynomial, rational, exponential and logarithmic. Series, sequences and conic sections are also included. A graphing calculator is required.
Transfers to both UC/CSU

MATH-108 Trigonometry **3 Units**
54 hours lecture; 54 hours total
Prerequisite: *Completion of MATH-106 with a minimum grade of C.*
The course provides a strong trigonometric foundation for the study of Calculus. Included are trigonometric functions, their inverses and their graphs, identities and proofs related to trigonometric expressions, trigonometric equations, solving right triangles, solving triangles using the Law of Cosines and the Law of Sines, polar coordinates, and an introduction to vectors. A graphing calculator is required.
Transfers to CSU only

MATH-115 Applied Calculus **5 Units**
90 hours lecture; 90 hours total
Prerequisite: *Completion of MATH-106 or equivalent with a minimum grade of C.*
Presents a study of the techniques of calculus with emphasis on applications to business, life sciences and social sciences. Topics include modeling, applications of derivatives and integrals for polynomial, rational, exponential and logarithmic functions. Graphing calculator is required.
Transfers to both UC/CSU

MATH-120 Calculus I **5 Units**
90 hours lecture; 90 hours total
Prerequisite: *Completion of MATH-106 and MATH-108 with a minimum grade of C or appropriate placement.*
Math 120 is the first semester of a three course sequence in differential and integral calculus. Topics include functions, limits and continuity, techniques and applications of differentiation and integration, and the Fundamental Theorem of Calculus. Primarily for students majoring in mathematics, engineering or sciences. A Graphing Calculator is required.
Transfers to both UC/CSU

MATH-121 Calculus II **5 Units**
90 hours lecture; 90 hours total
Prerequisite: *Completion of MATH-120 with a minimum grade of C.*
The second semester of a three-course sequence in differential and integral calculus. Topics include integration, techniques of integration, infinite sequences and series, polar and parametric equations, and applications of integration. Primarily for majors of mathematics, engineering, and sciences. Graphing calculator is required.
Transfers to both UC/CSU

MATH-130 Mathematical Concepts for Elementary School Teachers-Number Systems **3 Units**
54 hours lecture; 54 hours total
Prerequisite: *Completion of Intermediate Algebra or MATH-93 with a minimum grade of C or appropriate placement.*
This course emphasizes problem solving techniques and mathematical structure associated with numeration, set theory, elementary number theory, the real number system, ratio, proportion and patterns. Designed for prospective elementary teachers, this course includes activity-based explorations implementing the common core state curriculum standards.
Transfers to both UC/CSU

MATH-220 Linear Algebra **3 Units**
54 hours lecture; 54 hours total
Prerequisite: *Completion of MATH-121 or equivalent with a minimum grade of C.*
Recommended Preparation: *Completion of MATH-221 with a minimum grade of C.*
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. Properties of vectors are investigated 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.
Transfers to both UC/CSU

MATH-221 Multivariable Calculus **5 Units**
90 hours lecture; 90 hours total
Prerequisite: *Completion of MATH-121 with a minimum grade of C.*
The third semester of a three course sequence in differential and integral calculus. Topics include vector valued functions, calculus of functions of more than one variable, partial derivatives, multiple integration, Green's Theorem, Stokes' Theorem, and divergence theorem. Primarily for majors of mathematics, engineering, and science. A Graphing Calculator is required.
Transfers to both UC/CSU

MATH-222 Differential Equations **3 Units**
54 hours lecture; 54 hours total
Prerequisite: *Completion of MATH-221 with a minimum grade of C.*
The course is an introduction to ordinary differential equations. Such equations are solved by both quantitative and qualitative methods while applications from a variety of disciplines are examined. The course introduces theoretical aspects of differential equations, including establishing criteria for existence of solutions, and techniques for obtaining solutions including, but not limited to, series representation, singular points, Laplace transforms and matrices.
Transfers to both UC/CSU

MATH-232 Statistics **3 Units**
36 hours lecture; 36 hours activity; 72 hours total
Prerequisite: *Completion of Intermediate Algebra or MATH-93 with a minimum grade of C or appropriate placement.*
The use of probability techniques, hypothesis testing, and predictive techniques to facilitate decision-making. Topics include descriptive statistics; probability and sampling distributions; statistical inference; correlation and linear regression; analysis of variance, chi-square and t-tests; and application of technology for statistical analysis including the interpretation of the relevance of the statistical findings. Applications using data from disciplines such as business, social sciences, psychology, life science, health science, and education.
Transfers to both UC/CSU

MATH-235 Finite Mathematics **3 Units**
54 hours lecture; 54 hours total
Prerequisite: *Completion of High School Algebra 2 or Intermediate Algebra with a minimum grade of C, or appropriate placement.*
This course covers linear functions, systems of linear equations and inequalities, matrices, linear programming, mathematics of finance, sets and Venn diagrams, combinatorial techniques and an introduction to probability. Applications from business, economics and social sciences are included in this class.
Transfers to both UC/CSU