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## Math (MATH)

### **MATH 001A Introduction to Calculus (5)**

*Class Hours: 90 Lecture*

*Prerequisite(s): MATH 015 or MATH 016*

*Transfers to: UC/CSU*

*C-ID: MATH 210*

Introduction to Calculus

MATH 001A is an introduction to differential calculus of elementary functions (including trigonometric, exponential, and logarithmic). The course covers limits, continuity, derivatives, basic integrals, the Fundamental Theorem, and applications.

### **MATH 001B Calculus With Applications (5)**

*Class Hours: 90 Lecture*

*Prerequisite(S): MATH 001A*

*Transfers to: UC/CSU*

*C-ID: MATH 220*

Calculus With Applications

MATH 001B is an introduction to integral calculus. The course covers techniques of integration, applications of integration, improper integrals, polar coordinates, and infinite series.

### **MATH 002A Multivariate Calculus (4)**

*Class Hours: 72 Lecture*

*Prerequisite(S): MATH 001B*

*Transfers to: UC/CSU*

*C-ID: MATH 230*

Multivariate Calculus

MATH 002A is the study of three-dimensional vectors, calculus of functions of more than one variable, lines and planes, vector-valued functions, partial derivatives, multiple integrations, the calculus of vector fields, Green's Theorem, Stokes' Theorem, and the Divergence Theorem.

### **MATH 002B Differential Equations (4)**

*Class Hours: 72 Lecture*

*Prerequisite(s): MATH 002A*

*Transfers to: UC/CSU*

*C-ID: MATH 240*

Differential Equations

MATH 002B is the study of first-order linear differential equations and their applications in science and engineering, linear differential equations of higher order, applications of second-order differential equations to vibrational models, differential equations with variable coefficients, Laplace transformations and systems of linear differential equations. (Please note: This course is offered infrequently.)

### **MATH 010A Structure & Concepts in Math I (3)**

*Class Hours: 54 Lecture*

*Prerequisite(s): MATH 063 or MATH 064*

*Transfers to: UC/CSU*

*C-ID: MATH 120*

Structure & Concepts in Mathematics I

MATH 010A is designed for prospective elementary school teachers. The course covers the development of real numbers including integers, rational and irrational numbers, computation, prime numbers and factorizations, and problem-solving strategies.

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**MATH 010B                      Structure & Concepts in Math.                      (3)***Class Hours: 54 Lecture**Prerequisite(s): MATH 010A**Transfers to: UC/CSU*

Structure &amp; Concepts in Mathematics II

MATH 010B is designed for prospective elementary school teachers. The course covers counting methods, elementary probability, and statistics. Topics from geometry include polygons, congruence and similarity, measurement, geometric transformations, coordinate geometry, and selected applications. This class does not satisfy the G. E. quantitative reasoning requirement for non Liberal Studies majors at four-year institutions.

**MATH 016                      Precalculus and Trigonometry                      (6)***Class Hours: 108 Lecture**Prerequisite(s): MATH 063 or MATH 064**Transfers to: UC/CSU**C-ID: MATH 955*

Precalculus and Trigonometry

MATH 016 is designed to prepare students for calculus, and includes the study of polynomial, absolute value, radical, rational, exponential, and logarithmic functions, analytic geometry, and polar coordinates. The study of 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, and introduction to vectors.

**MATH 025                      Introduction to Statistics                      (4)***Class Hours: 72 Lecture**Prerequisite(s): MATH 063 or MATH 064**Transfers to: UC/CSU**C-ID: MATH 110*

Introduction to Statistics

MATH 025 is an introduction to 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 including business, social sciences, psychology, life science, health science, and education.

**MATH 039                      Quantitative Analysis                      (3)***Class Hours: 54 Lecture**Prerequisite(s): MATH 063 or MATH 064**Transfers to: UC/CSU*

Quantitative Analysis

MATH 039 is the study of mathematical topics as they relate to finance, systems of equations, linear programming, set theory, combinatorial techniques, and probability. This course also focuses on applications in business, economics, and social sciences.

**MATH 045                      Contemporary Math                      (3)***Class Hours: 54 Lecture**Prerequisite(s): MATH 063 or MATH 064**Transfers to: UC/CSU*

Contemporary Math

MATH 045 is a college level liberal arts mathematics course surveying a collection of topics including Management Science, Social Choice, Statistics and Growth and Symmetry. (Satisfies CSU Fresno Gen. Ed. CORE, Quantitative Reasoning).

**MATH 049 Mathematics Directed Study (1 - 2)***Class Hours: 108 Laboratory**Transfers to: CSU*

Mathematics Directed Study

MATH 049/099 are designed for student who wish to undertake special projects related to mathematics. Students, under instructor guidance and acknowledgement, may pursue individual exploration after completing or while currently enrolled in at least one course in the department of directed study.

**MATH 061 Elementary Algebra (5)***Class Hours: 90 Lecture*

P/NP

*Prerequisite(s): MATH 100, or MATH 101*

Elementary Algebra

MATH 061 is the first course in a two semester sequential elementary and intermediate algebra program. Topics for elementary algebra include arithmetic review, solving linear equations and inequalities in one variable, graphing linear equations and inequalities in two variables, solving linear systems, operations with polynomials, solving equations by factoring, operations with rational expressions, and addition of radical expressions.

**MATH 063 Intermediate Algebra (5)***Class Hours: 90 Lecture**Prerequisite(s): MATH 061*

Intermediate Algebra

MATH 063 is the second course in a two semester sequential elementary and intermediate algebra sequence. Topics for intermediate algebra include factoring, solving quadratic, rational and radical equations, inequalities, integer and rational exponents, graphing conics, functions, scientific notation, and applications.

**MATH 064 Elementary & Intermediate Alg (5)***Class Hours: 90 Lecture**Prerequisite(s): MATH 100*

Elementary and Intermediate Algebra

MATH 064 covers Elementary and Intermediate Algebra in one semester, eliminating the repetitiveness of the traditional two-semester sequence. This course is designed for students who either have had some previous exposure to elementary algebra or have a facility for learning math. This course satisfies the intermediate algebra requirement for any transfer-level math course.